The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

VOL. 29. NO. 7. TULSA, OKLAHOMA, JULY 3, 1930

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BRANCH OFFICE CORRESPONDENTS

D. H. Bancroft, 538 Ricou Brewster Building, Shreveport, La.
L. E. Bredberg, 610 Petroleum Building, Fort Worth, Texas.
Paul A. Elliott, Chronicle Office, Muskegon, Mich.
Tolbert R. Ingram, 130 State Office Building, Denver, Colo.
Charles E. Kern, 602 Albee Building, Washington, D. C.
Victor Lauriston, Box 136, Chatham, Ontario, Canada.
B. E. V. Luty, Bessemer Building, Pittsburgh, Pa.
A. E. Mockler, Rooms 1919-21, No. 154 Nassau Street, New York, N. Y.
B. D. Stevenson, 1617 Milam Building, San Antonio, Texas.
L. P. Stockman, 522 Union Oil Building, Los Angeles, Calif.
F. B. Taylor, Box 994, Casper, Wyo.
John B. Waldo, Room 1416, No. 6 North Michigan Blvd., Chicago, Ill.
Leon H. Walter, Oil City Derrick, Oil City, Pa.
George A. Whitney, Box 98, Main Postoffice, Toledo, Ohio.
Neil Williams, 1316 Second National Bank Building, Houston, Texas.

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Optimism Regarding Outlook Grows

Highest daily average estimated total production in 1929, week ended Aug. 24, 2,975,435 bbls. Lowest in 1929, Dec. 27, 2,595,320 bbls.

Based on Belief Refining Industry Will Endeavor to Reduce Stocks of Gasoline. Crude Oil Situation Good

Highest daily average estimated light oil production in 1929, week ended Sept. 14, 2,534,524 bbls. Lowest in 1929, Apr. 13, 2,142,036 bbls.

By Andrew M. Rowley

A more optimistic feeling regarding the outlook of the petroleum industry for the remainder of this year is becoming prevalent. This is due largely to strong indications that the refining industry will endeavor to reduce present excessive stocks of gasoline by curtailing runs to stills. Weakness in the refined oil market, due to large quantities of gasoline in storage, has been reflected on the crude oil situation and might have affected the crude oil price structure if permitted to go uncorrected.

Stabilization of conditions in Texas is expected to result from the work of the State Railroad Commission and the committee of operators and representatives of the pipe line companies who are making a survey of crude oil requirements with a view of holding production within the limits of these demands. Such action is being taken under the recently enacted common purchaser bill. Texas is and has been one of the States whose crude oil production has been greater than the quantity deemed as necessary and stabilization of conditions there will go far towards improving the general situation.

A new high record in consumption undoubtedly will be established during this week-end if weather conditions are conducive to motoring. With the Fourth coming on Friday, many motorists will avail themselves of the opportunity to take a three-days' trip. Holding runs to stills below requirements will permit a substantial withdrawal of gasoline from storage during this summer; eliminate the possibility of distress gasoline demoralizing the market; and permit the industry to enter the fall and winter months in a much stronger position.

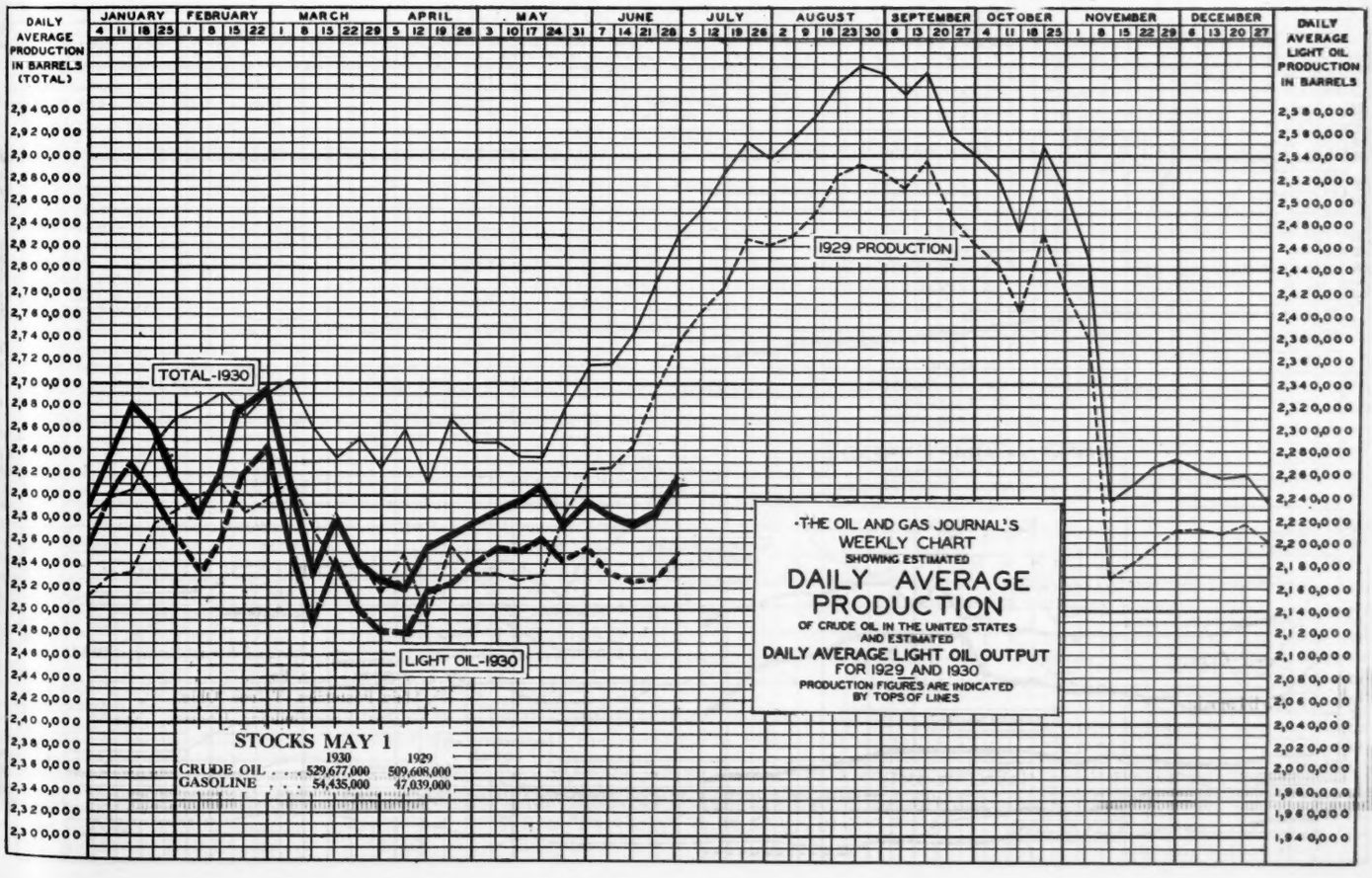
Conditions during the last half of this year, just starting, will depend very largely upon what the refining industry does right now in the matter of reducing stocks of gasoline.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended June 28 and a comparison with the previous week follows:

	June 28		June 21	
	Light	Heavy	Light	Heavy
Oklahoma—				
Oklahoma City	107,410	.....	115,790	.....
St. Louis-Pearson	32,085	.....	33,085	.....
Seminole	213,945	.....	217,840	.....
Northern miscellaneous	253,595	.....	248,865	.....
Southern fields	59,220	.....	59,115	.....
Total Oklahoma	666,255	.....	674,695	.....
West Texas—				
Hendricks	69,245	.....	68,995	.....
Yates	119,590	.....	116,820	.....
Remainder	117,112	.....	115,799	.....
Total West Texas	305,947	.....	301,614	.....
North Louisiana	35,050	5,150	35,075	5,100
Arkansas	17,825	39,460	17,770	39,110
North Central Texas	140,942	.....	141,034	.....
Texas Panhandle	108,380	.....	101,690	.....
East Central Texas	40,884	.....	41,296	.....
Kansas	133,945	.....	131,420	.....
Total Mid-Continent area	1,449,228	44,610	1,444,594	44,210
Gulf Coast	.....	205,481	.....	200,793
Southwest Texas	.....	93,418	.....	82,918
Eastern	134,000	.....	132,500	.....
Rocky Mountain area	89,014	.....	80,765	.....
California—				
Santa Fe Springs	115,500	.....	110,750	.....
Long Beach	93,500	.....	93,500	.....
Huntington Beach	28,000	.....	28,500	.....
Elwood	43,000	.....	44,000	.....
Ventura Avenue	48,500	.....	49,000	.....
Seal Beach	20,500	.....	20,750	.....
Remainder of State	165,000	89,500	164,500	92,000
Total California	514,000	89,500	511,000	92,000
Total United States	2,186,242	433,009	2,168,859	419,921
Grand total	2,619,251		2,588,780	

→ **Total Increase 30,471 Bbls.; Light Oil Increase 17,383 Bbls.** ←



Continued Gain in Gasoline Demand

Prices Rally From Low Levels. Refinery Curtailment and Low Jobber Storage Expected to Continue Improvement

By C. O. Willson

Continued improvement in demand with a rallying tendency in prices summarizes the gasoline developments in the Oklahoma (Group 3) market during the past week.

The increase in demand is general, the movement being especially heavy over the past few days, with all classes of distributors apparently preparing for a heavy consumption starting July 4 and extending over the week-end. Reports from jobbers and refiners with their own station outlets is encouraging to the sellers. The fear that the consumer demand during the summer months would prove disappointing due to the general business depression is not being borne out by reports since weather conditions became favorable for motoring. Those in touch with this situation state that while the tourist and regular summer demand may not show as large an increase as in 1929 over 1928, a 5 to 10 per cent increase is assured in the Southwest and Middle West where Oklahoma and other Mid-Continent refiners dispose of the bulk of their gasoline output.

So far as price improvement is concerned the change to date has been in the cheaper material. On Monday and Tuesday very little if any U. S. Motor gasoline was available to the jobber trade under 6 cents. This is in contrast to the situation late in June when sales were made as low as 5¼ cents. On the other hand several of the larger refiners in the State who had been quoting 7 cents or better have reduced their prices to a price range of 6½ to 6¾ cents. These refiners were not getting any spot business at the higher prices and were in many cases penalizing their regular jobber outlets buying on contracts based on published quotations. This development has narrowed the price range and made the spot gasoline market more competitive.

REFINED MARKET BAROMETER

Developments the first of the week indicated that gasoline prices at refineries were on the upturn after a slump of several weeks duration. Some minor adjustments downward in small refining groups may yet develop but the curtailment of operations at many plants coupled with the maximum gasoline consumption of the year now under way is expected to stiffen market quotations. The principal weakness of the past week centered in the cylinder stocks. Prices on bright stocks and steam refined stocks again declined sharply in eastern markets and competition was keen in finished motor oils throughout the territory east of the Rocky Mountains. Some improvement was noted in kerosene demand in the East but otherwise the market continued dull. Lower kerosene export prices are predicted. Price ranges on fuel oil, gas oil and distillate were generally changed with movement from refineries slow. Natural gasoline prices again declined in the Mid-Continent. Petroleum wax inactive and prices lower in East.

Mid-Continent—Improvement in refinery gasoline demand with advances from low quotations of previous week. Fuel oil and most grades of gas oil slow. Kerosene weak and prices lower. Natural gasoline prices reduced. Slow spot movement in all grades of cylinder stocks. Wax weak.

East Coast—Increased demand and promised curtailment in refinery operations aids gasoline market situation. No change in other products except steam refined stocks and bright stocks prices lower. Slow export demand for wax. More active demand for kerosene.

Pennsylvania—Sharp reductions in practically entire list of lubricants including finished grades of motor oils. Gasoline and kerosene slow and prices lower on some grades.

Chicago—More active demand for gasoline and market stronger. Kerosene continues slow. Little industrial demand for fuel oil. Lubricating oil quiet.

Gulf Coast—Prices unchanged. Fair movement of pale and red oils. Fuel oils easier.

California—Gasoline demand improves and higher prices predicted following recent sharp decline.

Curtailment Effective

The greater demand coupled with some curtailment in runs which will become effective at a number of plants during July it is felt will be reflected in further improvement in the gasoline market. The situation of individual refiners of course varies but there is a general recognition that the gasoline market requires a curtailment in supply and most operators are willing to do their share.

A curtailment of 10 per cent has been accepted by a number of refiners as satisfying their individual requirements for July. This curtailment is said to have been made effective July 1 by practically all refiners in the Middle West and part of the Mid-Continent area with even greater reductions by a few companies. In Kansas two or three refiners who are curtailing are buying part of their gasoline requirements from other operators.

The largest refining organization in Oklahoma has reduced its crude oil runs 20 per cent and some curtailment is expected at several other plants. The situation in Oklahoma is unusual in that gasoline stocks are less than they were a year ago. Were it not for outside competitive conditions it is certain that the Oklahoma market would recover quickly.

Reports from other areas indicate several refining organizations will bring their supply more in line with the demand, taking into consideration the gasoline inventories which will be substantially reduced during July and August. No additional curtailment is expected in California. Refiners in the latter area have been getting their house in order since early in the year and it is conceded they have done all that could be reasonably expected at this time.

Just what the total curtailment will amount to, remains to be seen. As has been pointed out in these columns previously if those who are not in a position to curtail will not expand their summer operations they will contribute to a general improvement plan. July and August are months in which a number of refiners expect to enlarge their crude oil runs or their cracking operations. Market observers point out that this normal expansion, in view of the market situation and top heavy stocks, is not justified this year and the least that any refiner can do in bettering conditions is not to expand operations at this time.

Jobber Storage

Another favorable factor in the present situation is the jobber storage. As

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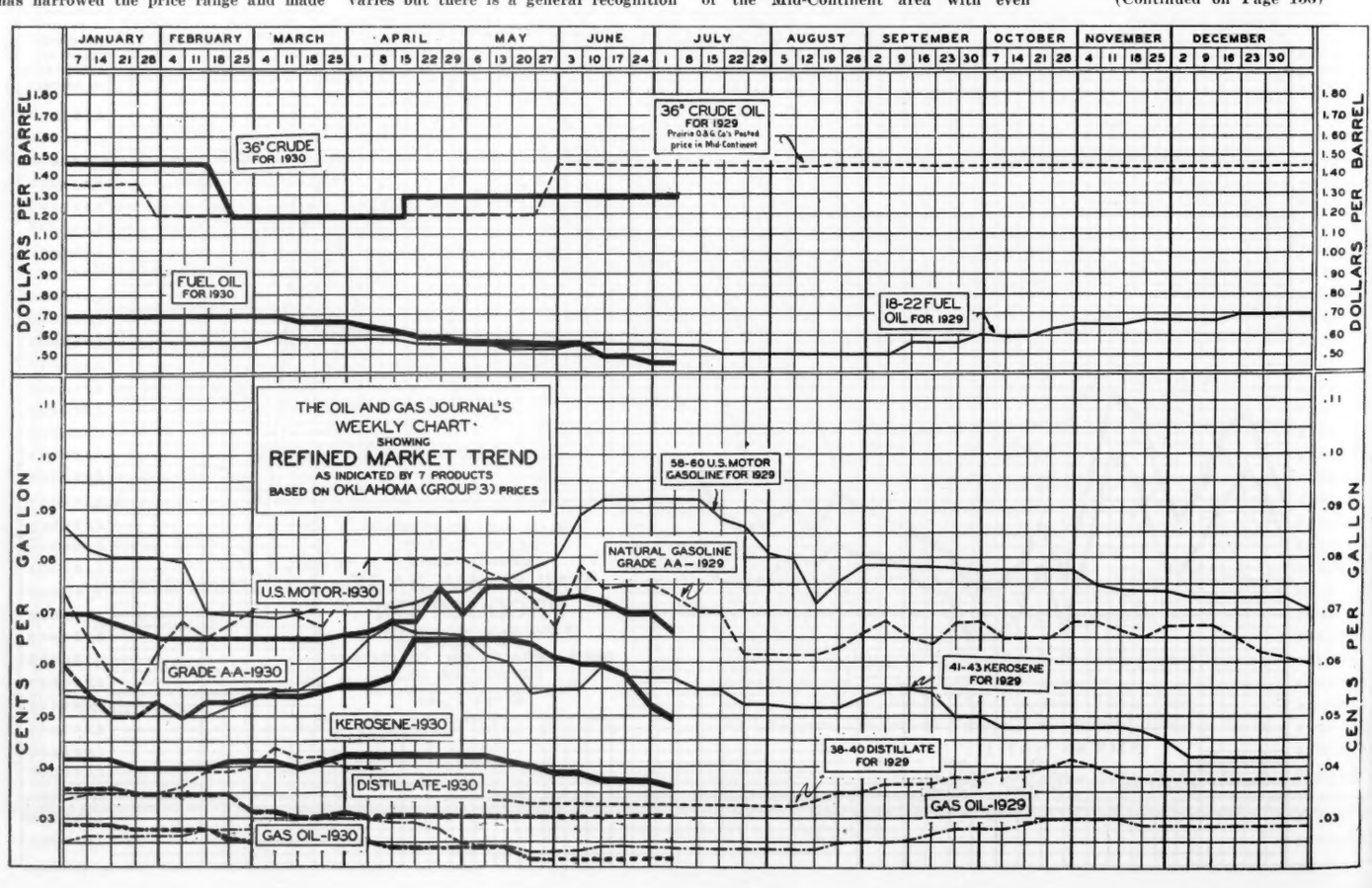

Wide Interest in Motor Fuel Changes

Proposed Important Revisions of Federal Specifications Board Discussed at Atlantic City Meeting. No Final Action Taken

By W. T. Ziegenhain

ATLANTIC CITY, N. J., June 27.—The wide interest being manifested in gasoline specifications and methods of testing was indicated here this week in the large attendance at the annual meeting of the American Society of Testing Materials. The petroleum industry was well represented in the annual meeting which was attended by over 1,000 delegates.

Additional recognition was given the petroleum technologists in the election of Dr. K. G. Mackenzie, consulting chemist of The Texas Company, as president of the entire society for the coming year. Doctor Mackenzie was vice president of the society last year and has served as chairman of the Committee D-2 (petroleum committee).

The joint meetings of the D-2 committee of the A.S.T.M. and the committee on specifications for the American Petroleum Institute in which the Government's proposed changes in gasoline specifications were discussed, attracted considerable attention. These meetings were held in order that definite instructions may be given the advisory board before modifications are finally adopted by the Federal Specifications Board.

Suggested Changes

In general, the Government has proposed to modify the manner of reporting the distillation results so the data will be given in percentages evaporated, instead of per cents distilled, to establish a Reid vapor pressure specification of 10 pounds on U. S. Motor gasoline and to institute two new motor fuels, namely, a motor fuel F for use in cold climates and a motor fuel T for use, or for storage in tropical climates. The motor fuel V, which was established last September, will be retained as a special fuel for ambulances, fire trucks and other special uses, making the total number of motor fuels four instead of two.

Include Distillation Loss

Research work of the Government's laboratories and several laboratories within the industry, have recognized the effect on motor performance of that fraction of the gasoline which has been called "loss." This fraction has been gained in importance both because the average loss has increased and represents a greater volume of the total gasoline and because so much more is now known with respect to the starting and accelerating qualities of a motor fuel based on the lower portion of the A.S.T.M. distillation curve.

It was pointed out, however, that should this proposed change be adopted an adjustment of the various intermediate specification would be needed, unless the Government expects to call for a more volatile gasoline over the entire distillation range. An analysis of the specifications for the newly proposed motor fuel F and motor fuel T also shows that in reality these grades exist now as optional grades under specified conditions of climate and use under U. S. Motor gasoline and the proposal to establish them as separate grades is looked upon by many as simply a move to take them out of the "footnote class" and give them a standing alongside of the regular U. S. Motor, and motor fuel V.

Change Too Often

The fact the proposed changes followed so shortly after the adoption of major revisions in the gasoline specifications last September, various technologists representing the manufacturing and distribution branches of the industry have felt more time should be permitted to elapse before the new proposals be acted upon. It is also well understood, however, that regardless of the expense entailed to the industry in shifting manufacturing methods and gasoline stocks, if the Government sees fit to establish different specifications on gasoline which it is purchasing for use among its agencies, the Federal Specifications Board reserves the right to make these changes at will.

Vapor Pressure Test

The other major change proposed is the adoption of a 10-pound limit as the vapor pressure on U. S. Motor gasoline. Such a specification has been suggested because of the tendency of certain gasolines to cause vapor lock. The Reid vapor pressure test has been recognized as acceptable for indicating this tendency in a gasoline and when the Government suggested a 10-pound limit, it was with the knowledge that in some tests conducted in its laboratories that a gasoline having an 8-pound vapor pressure caused a vapor lock.

The natural gasoline industry is interested in this proposal along with the refiners, for the adoption of any specification within a protective range will mean that additional laboratory testing will be required. This also places a penalty on the practice of blending off unstabilized gasolines and calls for a more exacting control of both refining and natural gasoline plant operations.

Instructions Confidential

These factors were given specific attention by those attending the meetings and definite instructions were given the members of the advisory board regarding the industry's views which are to be presented before the Federal Specifications Board for action some time in the future. The request has been made however, that this information be held confidential as has been the case of the proposed changes as outlined by the Government in May and nothing may be definitely stated until after the specifications board has reviewed the report of the advisory committee, which may require considerable time due to the interdependence of the entire list of specifications when only a few are changed.

Discuss Doctor Test

The meetings of the D-2 committee were marked with a frankness and completeness of discussion and led to a better understanding of the true significance of certain tests. Dr. T. G. Delbridge, process supervisor for the Atlantic Refining Co., asked if any work had been suggested in perfecting a doctor test that would be more acceptable than the present test. It was the general opinion apparently that the present test is of little value. Dr. R. E. Wilson, of the Standard Oil Co. of Indiana, summarized his views by saying that the test will be obsolete within the next three or four years and less said about it the better. By a vote of the committee it was then decided to lay the question of perfecting a doctor test in the background.

Artistic Properties

The need for a color stability test was then discussed in which it was pointed out that such a study should include formulating a test procedure on gasolines subjected to light and also gasoline held in storage. This question led to the suggestion that some method of test be instituted by which values may be assigned to odor. This was done, however with the idea of placing such an investigation on the same plane as that of color stability since neither gave any information regarding the performance of the gasoline in the motor. For that reason, the committee decided to pass up any investigation of test methods to determine these "artistic properties" of gasoline and to spend that time on the more important ones.

Minor Revision Suggested

As the various committee chairmen reported on the work going on in connection with the investigation of tentative tests, it was generally given as a progress report in which cases, D-2 committee took no action. Those changes that were suggested include a revision of the low-range, cone-shaped centrifugal test tubes for use in running b.s. and water determinations. These changes will be made primarily to make their manufacture more practical and will not affect the test procedure.

Natural Gasoline Tests

The old method of arriving at the endpoint in the distillation test for natural gasoline was restored and the previously suggested method by which no adjustment of the heat was permitted during the distillation of the last 5 cc. was withdrawn. The objection to the latter was based on the fact, two distillation tests were necessary if the last 5 cc. did not distill over within the five minutes allowed and the accuracy of the endpoint was not of sufficient importance from the standpoint of performance to warrant the additional work.

Viscosity Test Procedure

Objections were made regarding the thermometers specified in the present tentative method for taking viscosity tests and it was recommended that acceptance of the tentative procedure be withheld. The objects were focused on the size and shape of the thermometer bulbs and the accuracy of the thermometers is not within the range desired. In the report of W. H. Herschel, of the Bureau of Standards, and chairman of the viscosity committee, several suggestions of practical value to the laboratory testers were included. This in part was delivered as follows:

"The variation of the bath temperature from the predetermined equilibrium temperature must not exceed the limits established and should be as small as possible. This is particularly important in tests at the lower temperatures where the influence of temperature on viscosity is most pronounced.

"The bath liquid should be water wherever barometric and other conditions permit, to eliminate in so far as possible variations between different laboratories in the bath temperatures necessary for thermal equilibrium.

"The viscosimeter must be protected from draughts and rapid temperature changes, and the room temperature should be between 68° and 86° F.

"All oil must be passed through a 100-mesh wire strainer.

"In cleaning the barrel, pure benzene should be used, unless it is known that the oil to be tested contains no asphaltic matter which would be precipitated as a solid by light naphthas. After thorough washing of the barrel and removal of all solvent from the overflow cup, a quantity of the oil to be tested, sufficient to wet thoroughly all the inner surface of the oil tube, should be poured in and allowed to drain out. Any oil which collected in the cylindrical collar below and surrounding the outlet tube

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JERSEY COMPANY AND SUBSIDIARIES REDUCE GASOLINE PRODUCTION 15%

BY A. E. MOCKLER

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, July 1.—The Standard Oil Co. (New Jersey) has taken the lead in a movement to bolster up the statistical position of the gasoline market through a reduction of 15 per cent in gasoline output during July at its refineries and the plants of its subsidiary companies. The action of the New Jersey company, it is understood, is the forerunner of similar action by other large interests. While the 15 per cent reduction figure is by no means arbitrary for the industry as a whole it is understood that there will be a determined effort by the entire industry to cut down burdensome excess refinery holdings of gasoline and curtailment of refinery production schedules this month will be general.

The reduction in gasoline production of various companies will be regulated by conditions peculiar in each instance as determined by stocks on hand and potential distributing requirements. Thus some companies will curtail only 5 to 10 per cent on their operations this month while other companies will not reduce runs at all but will nevertheless curtail their surplus holdings through heavier withdrawals from storage to take care of the seasonal expansion of consumption at this time.

The present move of refiners is seen as a step by the refining branch of the industry to match the curtailment and conservation achievement of the producing branch and is expected to culminate by the end of the year in a movement to limit gasoline stocks at all times to the working needs of the industry.

Pipe Lines Can Influence Production

Potentially Big Fields That Are Undersupplied With Crude Oil Outlets Produce Conservatively

By James McIntyre

Crude oil purchasing companies and pipe line companies can exert a great influence on the volume of crude oil a field may produce. If a field is underpipe lined the production must be kept down to pipe line capacity if the producers do not go into the expensive business of storing oil in tanks which they must erect themselves. Thus, for example, the Oklahoma City Field in Oklahoma cannot hope to produce much more than 177,000 bbls. a day and the Yates Pool in Pecos County, Texas, cannot produce over 175,000 bbls. a day without entirely filling the pipe line capacity. Each of these fields has a potential production of more than 1,000,000 bbls. a day. As long as the pipe lines keep down their shipping capacity the industry is safe from a demoralizing production of crude.

Previous to the discovery of some of the very large fields of the present day the pipe lines kept up with the production of the fields or built storage to take care of the surplus. No oil company of the present day wants to store crude. In fact, oil companies refuse to be burdened with more excess oil. Some of the older companies are carrying many millions of barrels of crude accumulated under the old policy of unrestricted crude output when pipe lines took 100 per cent production from every well. This accumulation of stocks was based on the idea that the production of the United States might not last over a few years and that the time would come when the stored oil could be sold at a reasonable profit. The old theory of a shortage of crude in a few years has been exploded as field after field has been uncovered, and old fields have been made to yield from deeper sands. There is no market for stored oil at a profit. The desire of every company now is to get rid of stocks, and to keep from accumulating a new supply of crude in tanks. There is so much production in sight that the needs of the refiners can assuredly be met for many years to come.

If the present policy of handling big fields had been carried out in the days of Powell, and later Wortham, in Texas, there would have been no tremendous overproduction in either field. After Mexia, Powell was brought in and the lines into Mexia were extended a few miles into the Powell Field, making it possible for every barrel of oil to be produced and run and shipped out of the field. The Wortham Field, which lay between Mexia and Powell, was similarly served by the pipe lines. The Wortham Field was discovered on Thanksgiving Day in 1924 and came to a production peak two months later. These pools could have been made to spread their daily production over a long period had it not been for the anxiety of the pipe line companies to rush into the field and take all the production at a time when a dozen other fields had already caused an overproduction.

Early Day Glut of Oil

In the days of the first big field in the United States, at Bradford, in Pennsylvania, the National Transit Co. and the Tide Water Pipe Co. collected an average of over 70,800 bbls. a day in 1881 by means of their gathering systems, but their main lines to the Atlantic Coast could not handle a third of this volume of oil and the National Transit Co. built a great tank city north of Bradford that included 1,000 tanks holding 25,000,000 bbls. and as there was no more room for tank locations the company bought land near the city of Olean, across the state line in New York, and built another tank city to take care of the surplus oil from the Bradford Field. Glenn Pool in Oklahoma, back in 1906-07, was underpipe lined in respect to trunk lines, but the Prairie, Texas and Gulf pipe lines and other buyers had gathering systems in the field that took care of all the production, most of which went to storage during the flush days of the field. In the case of the great Cushing Field, the pipe lines had no market for most of the oil and the field was put under proration. Instead of shutting in wells, as is done now, the producers erected their own storage and produced their oil. The McMan Oil Co., John H. Markham, Jr., White & Sinclair and others owned a large quantity of stored oil before they sold out, Markham to the Carter Oil Co., the McMan Oil Co. to Magnolia, and White & Sinclair to the Sinclair Oil & Gas Co.

Operators in the Hendricks Pool and the Seminole Field did considerable storage tank building in the early days of those big fields. Most of this privately owned storage oil has since been sold in bulk to purchasing companies and refineries.

The above are only a few instances of the old-fashioned method of handling overproduction. It is no longer the custom.

A Change in Policy

It was only a short time ago that purchasing companies saw the uselessness of buying oil on a speculation, expecting to sell it later at a profit. There was only one period in the whole 70 years of the oil business when there was a great underproduction and that was when the European War was being fought. Stocks were reduced tremendously until the slump came in 1921. Since that time crude oil stocks have been increasing. It costs from 20 to 25 cents per barrel per year to maintain oil in storage tanks. A company buying oil in 1921 at $1 per barrel and holding it until 1930 would have to get nearly $5 per barrel to break even, and as a matter of fact that kind of oil would bring not over $1.25 per barrel in the present market. Is it any wonder that companies will not run oil to storage?

The Oklahoma City Field has a potential production of about 500,000 bbls. per day from the wells now producing, and perhaps 1,000,000 bbls. a day, for a short time at least, from all the 327 wells that have been completed. There are only a few pipe line companies in the field. They could by laying sufficient gathering lines gather the whole 1,000,000 bbls. of production but they could not get it through their main lines out of the field. The Sinclair Pipe Line Co. has a combination 8-inch and 10-inch line to its main line at Payson from the Oklahoma City Field with a carrying capacity of 50,000 bbls. a day; the Prairie Pipe Line Co., two 8-inch lines to its main line, with a capacity of 40,000 bbls. a day; the Empire Pipe Line Co., one 8-inch line to its main line north of Guthrie, capacity, 35,000 bbls. per day; Magnolia Pipe Line Co., one 8-inch line to Purcell, capacity 20,000 bbls. per day; Oklahoma Pipe Line Co., one 8-inch line to Drumright, capacity 20,000 bbls.; Shell Pipe Line Corp., one 6-inch line to its main line, capacity 12,000 bbls. This is a total carrying capacity of 177,000 bbls. These companies have indicated that their need can be served with 102,000 bbls. a day, but if they shipped out to capacity they could not handle a sixth of the production of the field. It is significant that the Gulf Pipe Line Co. and the Texas Pipe Line Co. have no lines into the field. Neither has the Cosden Pipe Line Co., which serves the Mid-Continent Petroleum Corp., the Continental Oil Co., Champlin Refining Co., or a number of other large buyers. The Mid-Continent Petroleum Co. and the Tidal Oil Co. buy oil in Oklahoma City but it is delivered by other lines. There is little danger of Oklahoma City overproducing to a large degree as long as the pipe line companies do not build enough lines into the field to carry the oil off, as the tank car shipments added to the pipe line capacity would not handle enough oil to badly flood the market.

West Texas Pipe Lines

The capacity of the trunk lines serving the fields of West Texas at the beginning of this year was 441,500 bbls. per day. In the course of last year 183,500 bbls. of additional pipe line outlet from the pools was constructed.

The field last year only once exceeded 400,000 bbls. per day, that being at the close of July when it reached 402,983 bbls. The field is now producing around 310,000 bbls. At the same time it must

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Canada May Retaliate With Oil Tariff

Fears That Example May Be Followed in Other Countries. Would Have Material Effect on American Interests

By A. E. Mockler

NEW YORK, June 28.—The initial step in what may prove to be a general setting up of tariff barriers against American oil products, is now under way in Canada, where the Canadian Minister of Trade and Commerce is reported to be planning to shortly place a duty on all oil and refined petroleum products exported from the United States into Canada. This action, it is stated, is in direct retaliation of the enactment of the new American tariff measure, which places a heavy duty on grain imports into the United States.

The plan being worked out against United States oil in Canada, according to reports received here, would provide for preferential arrangements with other oil producing countries, including Mexico, Colombia, Peru, Bolivia and Venezuela. Dominion authorities, it is reported, will propose that the South American countries allow Canadian foodstuffs and manufactured products, such as automobiles, aluminum products, etc., to enter their ports on a favored basis, in exchange for the admission of petroleum from these countries into Canada on a duty-free basis, with preference of course shown the South American oil products through the tariff to be placed on crude petroleum and refined products originating in the United States.

Effect in United States

The reported Canadian action would have a material effect on many units in the American oil industry, and affect a number of expansion projects now under way, it is believed. Among the companies which would be affected by the proposed Canadian tariff against American oil products would be a number of the principal independent companies operating in the Mid-Continent, and the tariff wall to be set up by Canada would also adversely affect many large oil units in the East which now do a substantial business with Canada, including Standard Oil Co. of New Jersey, Gulf, Cities Service, Pure Oil and others. On the West Coast a number of companies which handle a considerable volume of Canadian business, including Standard Oil Co. of California, General Petroleum, Richfield, Shell and others would feel the effects of this action by Canada. The Canadian tariff action would affect in some measure the new Ajax pipe line which Standard Oil Co. of New Jersey and Standard Oil Co. of Ohio are jointly building from the Cushing Pool in Oklahoma to Wood River, Ill. Present plans for this line call for the transportation of the crude to be moved through the Ajax line to the Imperial Oil refinery at Sarnia, Ontario, in addition to the supplying of a number of refineries of Standard of New Jersey and affiliated companies in this country.

Standard Oil Co. of New Jersey, Gulf Oil Corp., Pan American and Royal Dutch-Shell on the other hand would be greatly benefited, through subsidiaries, by the tariff action which the Canadian Government is contemplating against United States petroleum and refined products. All of these companies have important production in the South American countries to be favored by the Canadian action, with Standard of New Jersey especially favorably situated because of the important position which its producing subsidiaries hold in South America and its refining and marketing subsidiaries already occupy in Canada.

Might Boost Mexico

The Canadian tariff action, it is believed, will be responsible for an immediate quickening of operations in South American fields, with additional production from these countries developed to take up the slack which would be created by a high import duty which conceivably would put crude and refined products from the United States in a position where they would be unable to compete for Canadian business. Shell and Pan American, both of which have extensive refining capacity in the Caribbean area, would also be especially benefited by the contemplated Canadian tariff, it is believed.

While a Canadian tariff action against United States oil and gasoline would be a serious blow, oil men are more apprehensive regarding the possibility of a spread of this retaliatory action to other large consuming countries. Russia, Rumania and South America have been furnishing the American export oil industry increasingly sharp competition during recent months. American sellers of refined petroleum products in foreign fields have been forced to meet some extremely low prices quoted by these competing countries. Any general retaliatory duties against American products (and there is considerable likelihood of such a development), would be a severe blow to the American petroleum industry and serve to upset further the equilibrium of domestic markets, offsetting much of the

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A.P.I. Discusses Refinery Curtailment

Gain in Production of 12,500,000 Bbls. and Increase in Gasoline Stocks of 10,260,000 Bbls. in First Five Months of Year

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, June 30.—Refinery curtailment as a means of adjusting the statistical position of the American gasoline industry was discussed by executives of leading oil companies who met here this week at a gathering of the Division of Refining of the American Petroleum Institute, and reviewed the statistical situation in the refining branch of the industry.

W. R. Boyd, Jr., executive vice president of the institute, presided over the meeting of the refining group, which was attended by E. G. Seubert, Standard Oil Co. of Indiana; C. F. Meyer, Standard Oil Co. of New York, L. L. Marcell, White Eagle Oil & Refining Co.; R. C. Holmes, The Texas Corp.; J. H. Graham, Indian Refining Co.; W. T. Holliday, Standard Oil Co. of Ohio; Edgar D. Marston, Texas Pacific Coal & Oil Co.; Charles L. Suhr, Pennzoil Co.; W. N. Davis, Phillips Petroleum Co.; H. B. Earhart, White Star Refining Co.; F. A. Pielsticker, Skelly Oil Co.; W. C. Teagle, Standard Oil Co. of New Jersey; H. W. Sinclair, Sinclair Consolidated Oil Corp.; W. G. Skelly, Skelly Oil Co.; W. S. Farish, Humble Oil & Refining Co.; C. J. Barkdull, Standard Oil Co. of Indiana; J. C. Van Eck, Shell Union Oil Corp.; J. D. Gill, Atlantic Refining Co.; O. S. Ambrose, Tide Water Associated Oil Co., and John L. Gray, Deep Rock Oil Corp.

Increase in Stocks

The statistical division of the institute presented a special report which showed for the first five months of the current year an increase of 10,260,000 bbls. in gasoline stocks, and a gain of approximately 12,500,000 bbls. in production during the first five months of 1930 as contrasted with the similar period last year. In addition, the report showed for the first five months of 1930 imports of 6,488,000 bbls. of gasoline, against 2,783,000 bbls. in the corresponding months of 1929. The report, showing operations for the first five months of 1930 in detail, with comparisons for previous years is given in the accompanying table.

The statistical report indicated that May consumption figures are distorted, owing to the sharp drop in exports during that month. "The month of May," the report states, "indicates an increased consumption of 8.05 per cent over May of 1929. This increase, however, seems to reflect a larger increase in domestic consumption than actually took place. During the first four months of 1930 the gasoline export figures showed surprising increases over the corresponding period of last year. Suddenly, in May, the export demand fell to 6.64 per cent below May of last year. Gasoline, then, that moved toward the coast, instead of actually being exported and showing up in available statistics as an export, must have remained in bulk terminal storage, and since it was not exported but did move away from refineries, it is obviously incorrectly charged to domestic demand, thus giving a distorted percentage increase figure for domestic consumption."

While no official report of the proceedings of the refining division session was made, it was learned that there was some discussion regarding the advisability of a cut of 10 per cent in current refinery operations as the first step toward restoring a normal balance between supply and demand. Success of a move of this kind, it was reported, hinges upon the ability to secure general acceptance of this plan among refiners. A number of interests, not tank car sellers, but refining only for distribution through their own domestic and export sales outlets, are understood to have taken the position that inasmuch as they do not sell in the open market, they cannot be classed among the "overproducers" and that curtailment of output is up to those refiners who are open market sellers, and whose overproduction has contributed to the present shaky position of the market.

To Limit Storage

It was indicated, however, that a determined effort would be made to secure comprehensive data on the industry's requirements of stored gasoline as "working stock" and that co-operative efforts would then be directed toward limiting stored holdings to actual working stocks, with liquidation of surplus holdings and

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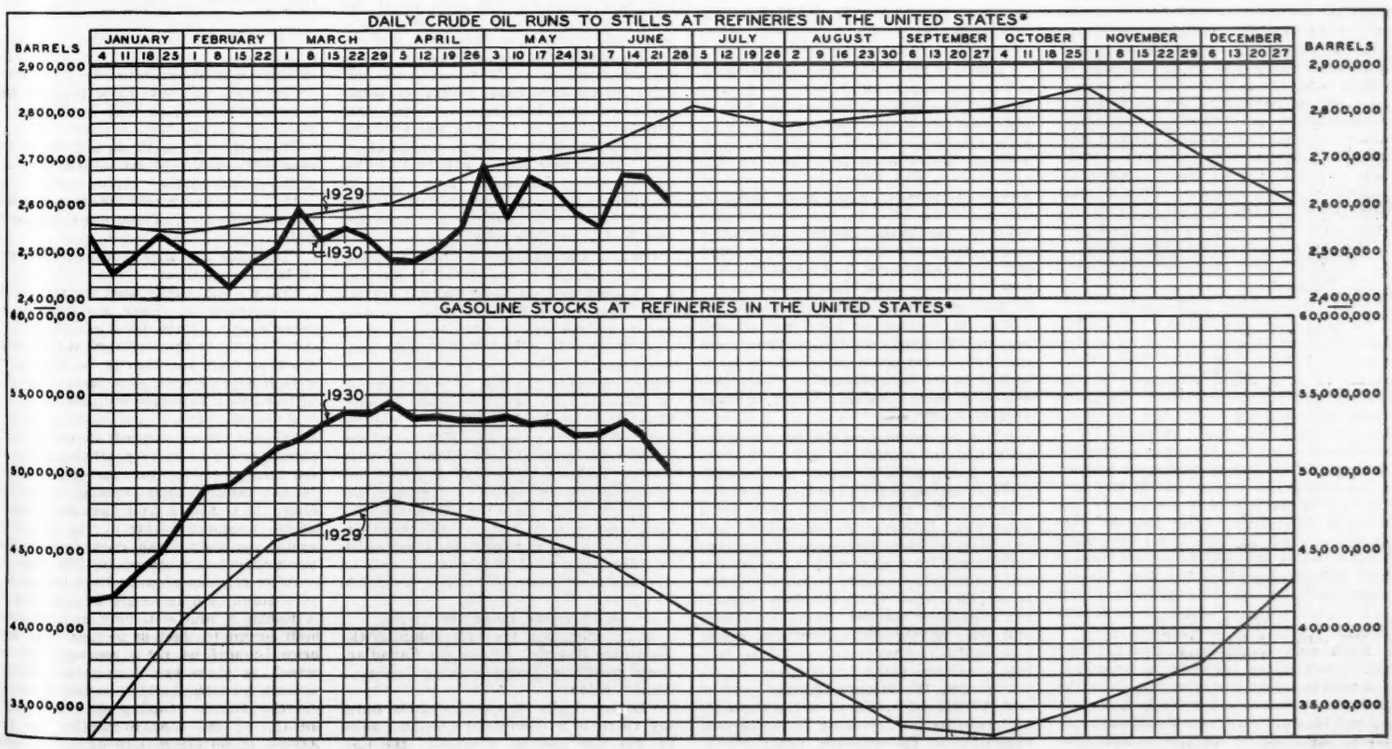
AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending June 28.

	Week ending June 28				Week ending June 21				Week ending January 4			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	497,400	8,163,000	9,208,000	100.0	504,100	8,196,000	8,774,000	100.0	454,857	5,998,000	7,431,000
Appalachian	91.0	78,000	1,638,000	882,000	91.0	79,000	1,682,000	757,000	91.6	76,571	1,282,000	805,000
Indiana, Illinois, Kentucky	99.6	320,700	8,067,000	4,190,000	99.6	326,430	8,190,000	4,067,000	98.6	289,300	5,483,000	3,505,000
Oklahoma, Kansas, Missouri	89.9	295,300	4,609,000	4,715,000	89.6	286,700	4,794,000	4,725,000	87.7	263,428	3,604,000	3,277,000
Texas	90.4	607,900	6,802,000	10,444,000	90.4	603,100	7,346,000	11,034,000	90.7	539,857	6,590,000	13,757,000
Louisiana and Arkansas	96.8	170,000	2,467,000	1,929,000	96.8	177,430	2,432,000	2,082,000	96.8	160,000	2,161,000	4,499,000
Rocky Mountain	93.6	65,700	**2,704,000**	**1,196,000**	93.6	67,550	2,713,000	1,174,000	93.3	41,614	2,273,000	973,000
California	99.3	592,400	15,200,000	106,870,000	99.3	576,710	15,112,000	106,702,000	99.2	642,857	14,826,000	109,770,000
Total United States	95.7	2,627,400	49,700,000	139,437,000	95.7	2,621,000	50,465,000	139,315,000	95.4	2,468,285	42,217,000	144,017,000
Texas Gulf Coast	100.0	452,600	5,606,000	7,466,000	100.0	453,100	5,807,000	7,501,000	100.0	429,585	5,579,000	10,792,000
Louisiana Gulf Coast	100.0	114,900	2,066,000	1,135,000	100.6	123,100	2,037,000	1,226,000	100.0	108,514	1,877,000	3,818,000

(1) Per cent of refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.



Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.

Economical Production of Natural Gas

Practical Suggestions in Producing Methods. Efficient Operation of Small Wells. Classification of Wells

By J. French Robinson
Geologist and Engineer, The Peoples Gas Co., Pittsburgh, Pa.*

The complete history of each individual well should be kept and studied, just as a doctor keeps a complete chart of his patients. It is very important to have a complete record of the well for study in connection with additional locations, as well as looking after and taking care of the well in future years.

From the comparison of any individual well log with a known type section of that vicinity, wells need not be abandoned before reaching the last known producing horizon. Neither may they be drilled several hundred feet below, as has been done in many cases. Thousands of wells have been completed on which no records are available today, and this alone is costing the industry thousands of dollars. Many wells are being cleaned out and drilled deeper, on which we have absolutely no data as to where the holes were reduced, where the packers were set, and where the various strings of pipe were run. It is needless to say that this does not afford an economical condition under which to operate.

Tubing Wells

Not many years ago, the casing and tubing of gas wells was not considered important, for at that time there was sufficient pressure to clear the well of any water it might make in later years. It was customary to tube wells with small tubing, such as 2-inch. When the well reached the point where the pressure was not sufficient to clear it of water, it was abandoned. Today, conditions are much changed. Wells are being cased with larger pipe and run to a greater depth. It is quite necessary that the casing be placed below all water-bearing horizons. Some of the water is contaminated and corrodes the pipe, thereby limiting the life of the pipe. To overcome this condition, the pipe may be painted. The packers should be set as close to production as possible, but if it is necessary to place the packer well up in the hole, discs or some other protecting devices should be run on the pipe below the packer to catch any cavey material that might fall into the well. If necessary to tube a well, the smallest sized tubing used should be 4-inch. The well may be bailed economically through 4-inch and if larger pipe is used the well may either be bailed or cleaned out. If it is necessary to clean out a well which has been tubed with small tubing, the tubing must be pulled and packer fished out. On completion of the repair work, either a large string of pipe must be run in the well or it must be retubed and repacked. This often proves expensive.

Overcoming Settlement

In some wells, considerable trouble has been experienced when setting an anchor packer. After a period of time, there seems to be a slight settlement of the tubing, and the packer slips. In many cases, this slipping causes the packer to let go. This has been overcome in a great extent by the following method of tubing. Before setting tubing on bottom, a measuring line is run, and if any cavings are in the hole they are cleaned out through the tubing. After hole is thoroughly cleaned out, pipe is set on a solid bottom, which prevents future settlement. The failure of packers has been largely overcome by the use of combination wall and anchor packers, which prevents settling.

Each well should be gauged at least once a month, and usually once a week. If the well is in the line, the rise above the pressure should be taken for 1, 2, 3, 4, 5, 10 and 15 minutes. From the minute rise above line pressure and the cubical content of the well, the approximate delivery may be calculated. If the well is not in the line, the closed-in pressure should be taken. This data should be summarized monthly and compared with previous data. If any material differences are noted, the well should be given first aid, such as bailing. If it does not respond to this treatment, then it should be completely overhauled, for we feel that each well must do its best in order to meet our requirements.

Wells which show a sudden decline in pressure are often found to be salted over. This condition should be treated as follows: The well should be shut in for a period of time and results observed. In some cases, moisture entering the well with the gas will dissolve the salt, while in others, it is necessary to supply fresh water to the well to dissolve the salt. If neither of these treatments prove beneficial, it will be necessary to remove the salt, either with bailer or tools.

The production from wells of small volume may, in some cases, be increased by operating the wells periodically. If used constantly, the sand may become clogged, which has a tendency to shut off the gas. By shutting the well in occasionally, the built-up pressure, upon being released, tends to open up the sand.

Wells of high rock pressure and small volume sometimes freeze. Some wells have actually been abandoned due to freezing, when the operator thought the gas to be exhausted. Usually shutting in the wells will cause them to thaw out, but in some cases it has been necessary to shoot them.

Locations

Since the redrilling of old fields is being done at the present time, it becomes quite an economic problem to know how close to locate a well to an old abandoned one. Very few records are available which show in detail the method of plugging old holes. In fact, many of the wells abandoned in the past have not been plugged, and much damage has been done by the water from a nonproducing horizon passing through an old abandoned well to a producing horizon. It is therefore absolutely essential, for economic production, tn properly plug all wells.

Competition plays an important part in the economical use of gas wells. To meet this condition, wells may be classified into five classes, as follows:

"A" wells or those directly offset by competitors. All wells falling in this class should be used continuously if possible.

"B" wells or those 1,000 to 2,000 feet from competition, or wells near an open unoperated lease.

When the "A" wells do not supply the required amount of gas, then the "B" wells should next be used.

"C" wells or those 2,000 to 3,000 feet from competition. These are third choice wells.

"D" wells or those thoroughly protected from competition.

"D" wells are only used for peak loads and emergencies. They are held in reserve nearly all the time.

"E" wells or those of special character. Rock pressure too high to be shut in, or a high royalty well, or a large consumer of free gas, a defective well, etc.

Since the natural gas business is seasonal, the above method of using wells should prove to be very efficient. One of our large producers uses its well less than 50 per cent of their possible productive time. It is also a fact that the amount of gas produced during a year is considerably less than 20,000 cubic feet per day per well, when averaged for 365 days.

After a group of wells have become depleted and can no longer be operated at a profit, it may still play an important part in our production picture. The area may be utilized as a storage field in which to store gas during the summer months from the highly competitive wells, for the purpose of using the gas as needed during the winter months. In the future, many depleted fields will be used for the storing and mixing of natural and artificial gas.

*Before Pennsylvania Natural Gas Men's Association, Oil City, Pa., June 27-28.

PENNSYLVANIA NATURAL GAS MEN HOLD CONVENTION AT OIL CITY, PA.

By Leon H. Walter

OIL CITY, Pa., June 28.—Some 300 men associated with the natural gas industry attended the two days' sessions of the Pennsylvania Natural Gas Men's Association in this city Thursday and Friday.

George E. Whitwell, vice president of the Equitable Gas Co., Pittsburgh, and president of the Pennsylvania Natural Gas Men's Association in the course of his opening address said:

"After all is said and done, natural gas is nothing but a form of heat. As such it has value, as such it is sold in truly competitive markets. While the franchises are generally monopolistic, there can be no question of the competition, because any other fuel selling at a competitive price will be selected by the user unless the natural gas is that which will give a quality product at the lowest overall cost. As these gas lines expand, certainly these other providers of different fuels must be increasingly aggressive.

"Because the coal men see the possibility of their market slipping away, the loss of sales will be a serious thing to them. The oil man is in the same boat. The bottled fuel man, about whom we do not hear so much in this part of the country, perhaps, but who is active in the Middle West, will have to suffer from the same cause. As the natural gas reaches out more and more into what are now remote parts of the country, this industry is going to have more, rather than less, competition.

"I believe all of you are familiar with power companies which have filed rates for electric cooking which are as low as 1¾ cents per kilowatt hour. Or perhaps with others giving opportunity to cook with electricity at a price between 1¾ and 3 cents, and then others to cook at 3 cents. Heretofore, a gas range installed has sold for half or one-third of the price of an electric range. Today this is no longer the case. I have no brief for the economics of this situation. The fact remains it has been done.

"We may have business which we jeopardize because of some act on our part which displeases the customer. He gets into a frame of mind where he is willing to try something else. That is a perfectly human thing. Think of your own experiences.

"And the extent to which we recognize its value and constantly give to the customer just a little bit more than he pays for and are constantly seeking new avenues for the use of our product at a price that is properly competitive and at the same time remunerative, to that extent will the gas companies prosper and continue to prosper even more greatly as this wave of tremendous natural gas expansion spreads over the country and puts at the disposal of the public that which, in my opinion, is the best fuel available today."

S. W. Meals' Address

S. W. Meals, president of the Carnegie Natural Gas Co., speaking of the present expansion of the industry, said:

"The extension of pipe lines to consuming markets will do more than anything else to eliminate the useless waste of natural gas, and with co-operation between the pipe line carrier and the oil producer, the gas which is now being wasted will be carried through a network of pipe lines to the consuming market.

"The public has become interested in natural gas utility securities. Less than 20 years ago to finance a $3,000,000 natural gas project was a weighty problem; today, it may be accomplished overnight as it were. If a sufficient supply of gas can be contracted for and a market secured, capital is ready to finance pipe lines of most any length.

"There are some who wonder what would happen if the supply of gas should fail. Would there be only streaks of rust for the enormous sums invested in long transmission lines? With proper co-operation between gas utilities and oil operators and with state regulations prohibiting gas to be wasted, natural gas will be available for many years. New gas bearing area reserves will be found to supplant the depleted areas but this is not the only "back-log" the natural gas industry has. Modern cracking plants are able to turn out large quantities of liquefied petroleum gas (butane and propane) with a B.t.u. value of 2,800 per cubic foot. It is claimed the value of this fuel produced will soon equal the net value of the total manufactured gas produced. This new gas fuel will be used to meet peak demands and to enrich manufactured gas. Then, too, the gas from by-product coke plants is something with which to reckon. Over 800,000,000,000 feet of this gas was produced last year, the B.t.u. value averaging about 575. Many new plants will be installed at convenient locations where coal can be had at reasonable prices, where plenty of water is available and a market can be had for the coke.

"When we, the public, have enjoyed the convenience of a gas fuel it becomes a necessity and we must have it. I believe the day will come when natural gas from the great fields in the West and Southwest will help to cook your breakfast in cities of the eastern coast; when coke oven gas will be manufactured in the coal regions and pumped through pipe lines to be blended with natural gas; when butane or liquefied petroleum gases will be used in conjunction with the gas industry to supply outlying districts or enrich the manufactured gas to satisfactorily meet the consumers gas fuel requirements and earth's reservoirs or underground storage fields from which to draw peak load requirements will be developed at convenient and available localities."

Mr. Schauer Discusses Trend

F. F. Schauer, vice president of the Equitable Gas Co., Pittsburgh, in an address on "The Trend of Our Domestic Land," said:

"In practically all sections of the country there is a downward trend in sales of gas for general domestic purposes, chiefly in cooking. Mother or wife does

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Highest Producing Well in the World

Elevation at Derrick Floor 8,200 Feet, Contrasted With Deepest Well, Over 3 Miles Lower. Effect of Altitude on Operations

By Tolbert R. Ingram

DENVER, Colo., June 30.—Oil structures are oil structures regardless of whether they are located out in the ocean, a mile or two below sea level, or upon the plateaus of the mountain ranges. In other words, geological formations containing source material and proper structural conditions may produce oil at any depth at which they may be found below the surface of the earth or below or above sea level, and altitude has nothing to do with the accumulation of oil in the sands or the quality of the crude. That is the unanimous opinion of all the geologists consulted on the question.

The high altitudes do, however, have some effect on the time required to drill wells, the cost of operations and the efficiency of equipment and men and the

—Courtesy Midwest Review.
Nelson sisters, who snowshoed the crest of the continent in midwinter.

risks incurred in putting a hole down several thousand feet into the earth. Most of the operators familiar with drilling in high altitudes are in agreement concerning this phase of the question.

While much has been said and written in recent years concerning wells which have established new records for depth, and some rivalry has existed among those boring deepest into the earth, comparatively little has been mentioned regarding those wells which start nearest the heavens. Recently the words "the highest well in the world" have appeared several times in the drilling reports. The writer undertook to locate the well that is entitled to this record and ran into some interesting developments.

The Rocky Mountain states, where the highest peak rises to an altitude of 14,402 feet, or 2.7 miles above sea level, is the natural hunting ground for a quest of this kind. A well drilled by the Lincoln-Idaho Oil Co. about 12 years ago on the Dry Piney structure in Sublet County, Wyoming, approximately in Section 12-28-114, appeared for a while to hold the record. Its altitude was given as 8,433 feet and it produced some oil at around 1,000 feet. However, a check on the well could not be obtained and while the quest was in progress, other claimants made their appearance.

"Close to 9,000 Feet"

In 1927, the Moody Oil Corp. started a test on Section 30-41-16, on the Glade structure in Dolores County in southwestern Colorado, under a contract to drill to 3,500 feet. When that depth was reached, it was taken over by the Transcontinental Oil Co. which is continuing the operation at a depth around 6,000 feet. The original reports gave the elevation at 8,500 feet, and reports to the United States Geological Survey place it at 8,300 feet, but the superintendent in charge says it is "close to 9,000 feet." The uncertainty as to the exact elevation makes it difficult to say whether up to a few weeks ago it held the record. This well, it is understood, is located in a canyon and a few hundred feet away the walls are much higher, probably bringing it within the range of the several figures given until measured with an instrument.

The Midwest Refining Co. is in the race with its No. 21-X Rich, SW NW, Section 9-6n-80, on the Buffalo Creek structure in Jackson County, in northern Colorado, which has an elevation of 8,690 feet. The Producers & Refiners Corp.'s No. 1 Hendershot, SE NE, Section 2-6n-81, 3 miles to the west of the Midwest well, is approximately the same altitude. There has been some rivalry between the crews drilling these two wells as to which would first reach the objective, and they can now try to figure out which will have the altitude record. The elevation of the Producers & Refiners' well is not available.

After the two Jackson County wells got under way, Miller Robert Taylor tried to grab off the record by organizing the Mountain Oil Corp., and spudding in on its No. 1 State, NE cor., Section 36-25½-115, on the Wyoming structure, in Lincoln County, western Wyoming. The altitude of this well is 8,800 feet, which at the time seemed ample for all purposes, and most of the major companies operating in this territory took spreads and joined in the co-operative group development to help keep the record. However, before the well could reach the objective, a group of Denver men organized the South Park Oil Co., found a place on the Jefferson structure, in Park County, near the center of Colorado, that is 9,600 feet above sea level, and spudded in a well which probably will give them the blue ribbon for a while. The elevation of this well is based on the railroad surveys of the Colorado & Southern Railroad which operates through South Park, the basin in which the well is located. The Standard Oil Co. of California's No. 1 Wyss, Section 12-3n-115, on the Cottonwood structure in Sublet County, Wyoming, which was abandoned recently, had an elevation of 8,437 feet.

Highest in World

The wells referred to are all drilling operations with the exception of the Lincoln-Idaho and the Standard of California wells. H. B. Simcox, assistant manager of production for the Continental Oil Co., recently wrote in regard to that company's No. 1 Sherman, NW NW, Section 12-9n-79, in Jackson County, Colorado, as follows: "The location proved to be even more unusual in view of the fact that a well drilled there would be the highest in the world. It still retains that distinction." Its elevation is 8,200 feet, and the record as to altitude for producing wells still holds good, though since then other wells that are higher have been started. This well is known as the "ice cream" well.

A. R. Wilson, general manager of the Texas Production Co., was of the opinion that his company had the record for producing wells in the Moffat Dome operation in Moffat County, Colorado, until his attention was called to Mr. Simcox's pet up near Walden. Then he qualified his claim by putting in a bid for the highest producing oil field. Since the Walden well is shut in, it looks as if the Moffat Pool qualifies. Its wells run from 6,800 to 7,139 feet. The Iles Dome wells, near the Moffat Pool, run around 6,375 to 6,500 feet and the Hiawatha Dome, farther north in the same county, has several wells above 7,000 feet, but they produce gas only.

Contrast With Deepest

Texas and California offer the contrasts. The Texon Oil & Land Co.'s No. 1-B University, in the Big Lake Field in Reagan County, Texas, was completed on December 4, 1928, at 8,523 feet, with an initial production of 402 bbls. of oil and 7,000,000 feet of gas a day. A few weeks ago it was producing 2,900 bbls. of oil and 26,000,000 feet of gas per day. This well was credited at the time with being the deepest producing well in the world. Its elevation is 2,733 feet above

—Courtesy Midwest Review.
D. L. Fix takes his own picture with a timer on his kodak at his cabin.

sea level. The hole is bottomed 5,790 feet below sea level. The Continental Oil Co.'s No. 1 Sherman, near Walden, Colo., is 8,200 feet above sea level at the derrick floor. From the derrick floor of the Walden well to the bottom of the Big Lake well, based on sea level datum, is a vertical distance of 13,990 feet, or 2.65 miles. It is a coincidence that the highest and deepest producing wells are now owned by the same company, the Continental having acquired the Texon company.

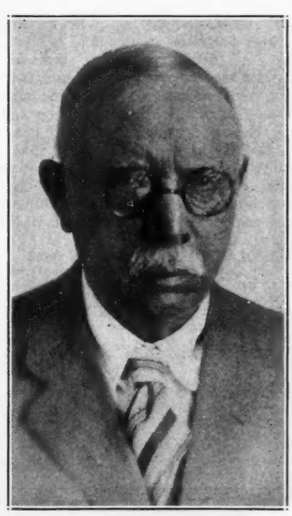
When it comes to deep wells, California sticks its thumbs under its arm pits and winks knowingly. R. D. Bush, state oil and gas supervisor, says the deepest well in California is the Standard Oil Co. of California's No. 1 Mascot, Section 26-32-23, in the Midway Field. The elevation of the derrick floor is 1,503 feet and the depth of the well is 9,629 feet. The

(Continued on Page 150)

D. S. WAKENIGHT, OLDEST OIL REPORTER IN COUNTRY, RETIRES

After 45 years of continuous service in reporting oil developments of the eastern fields, D. S. Wakenight, oldest oil reporter in the United States and staff representative at Pittsburgh, Pa., for The Oil and Gas Journal and the Oil City Derrick, has retired.

Mr. Wakenight was born at Donnelsville, near Springfield, Ohio, in 1851, where he attended the common school in winter and worked on adjacent farms during the summer. Later he graduated as a teacher of the district schools in which capacity he served for a time before attending a commercial school in Buffalo, N. Y. In 1876 he migrated to the oil regions of Pennsylvania, taking a position on the Parker City Daily. A year later, in 1877, Mr. Wakenight was engaged by the Oil City Derrick, since which time with the exception of a period of five years, he has been continuously employed by the Boyle publications. In 1890 he was transferred to Pittsburgh to report the oil developments of southwest Pennsylvania, West Virginia and southeast Ohio, in which position he has remained continuously up to the present time.



D. S. Wakenight

Mr. Wakenight has always been a close observer of the developments in the oil industry. At the time of his first employment on the Oil City Derrick it was generally believed that Pennsylvania would supply the requirements for crude oil in the United States for all time. When the stocks in storage in the eighties had reached more than 30,000,000 bbls., the industry became demoralized and the famous shut-down movements were inaugurated with partial success. Mr. Wakenight's acquaintance with pioneer oil men and with those of the later generation is possibly as broad as that of any other man in the industry at the present time. He has been possessed of remarkable health and for the many years of his long continuous service has never failed to supply the oil reports for the Oil City Derrick and for The Oil and Gas Journal. Mr. Wakenight at this time is in good health except for an impairment of his eyesight. He will continue to make his home in Pittsburgh.

Hydrocarbon Gas As Source of Power

Vast Expansion in Use of Natural Gas Throughout United States as New Pipe Lines Make Wider Distribution Possible

By Gustav Egloff
Universal Oil Products Co. Research Laboratories*

In the use of fuel in the United States, a change is occurring that is truly revolutionary.

In home and factory alike tremendous quantities of gas are replacing coal. The cleanliness and adaptability of gas combustion gives gas signal advantages over other carbonaceous fuels. Over 2,800,000,000,000 feet of gas were consumed in the United States during 1929. Of this quantity 80 per cent came from the natural gas and petroleum industries, and was made up of natural gas, still gas and gas from the cracking process.

Natural gas, long used extensively, is now finding still wider distribution as large capacity pipe lines are being laid to transport the gas from distant fields to great centers of population. Some pipe lines convey gas to cities hundreds of miles from the sources of production. One line transports gas over 400 miles, and another is proposed which will extend a thousand.

Recognition and utilization of the value of the gases generated in the distillation and cracking of oil are rather recent developments, but are now becoming general.

Production in 1929

The 1929 production of natural gas and refinery gases is estimated at 2,320,000,000,000 feet. This volume was made up of 1,800,000,000,000 feet of natural gas, 270,000,000,000 feet of petroleum distillation gases, and 250,000,000,000 feet of gas from the cracking process. At the points of consumption the value of the amounts of the three gases produced in 1929 was over $500,000,000. Much of this gas came into direct competition with coal. The amount consumed as fuel had a heating value equal to 92,000,000 tons of coal. Thus the natural and petroleum gas consumed in the United States for fuel purposes is equivalent to one-sixth of its coal production.

From the standpoint of the well being of city populations the replacement of coal by gas is a tremendous gain. The soot produced in our cities through the burning of solid fuels is a burden of magnitude. The use of gas results in a great economic saving, and is a true conserver of health.

It is estimated that smoke causes an annual loss to the United States of over $500,000,000. The loss for each city dweller due to soot from burning coal is approximately $15 per year. The damage done by smoke is of many types. It vastly increases expenditure for laundry and dry cleaning. It impairs merchandise, paint, metal work and the surface of buildings, it adds to the labor of housekeeping, and is an incalculable detriment to the nerve force and health of the nation.

Smoke Problem

Studies of the smoke problem in our great cities have yielded astonishing results. In Chicago a survey showed that the dust-fall, which is largely though not entirely due to products of coal combustion, was as high as 460 tons per month per square mile. In Pittsburgh a deposition of 1,000 tons of solids per square mile per year has been reported. Here it was found that eliminating dense smoke did not solve the problem, as the dense smoke amounted to but a small part of the solids leaving the smoke stacks. When increased draft was used to prevent dense smoke, the total solids ejected increased 50 per cent. Even perfect combustion of coal will not eliminate the deposition of solids in our cities, for this fuel contains a large percentage of ash, which pollutes the atmosphere when coal is burned.

The damage done by smoke is seen clearly when one observes plants in cities. Not only does soot coat their leaves but a tarry residue is deposited, which rain does not remove and which often proves fatal. Evergreens are particularly heavy sufferers, as their leaves are not replaced annually and the tar coating remains. A few years ago the Shaw gardens, St. Louis, Mo., which has made a careful study of the smoke problem, had one of the finest collections of evergreens in the United States. There now remains, of this magnificent group, but a single hemlock and a few distorted Austrian pines. Smoke and fumes caused the death of the remainder.

The harm to human beings is equally as positive as that to plants, although not so readily seen. Smoke irritates, and inflames the throat, encouraging bronchitis, and blackens the lungs, predisposing to pneumonia. In Glasgow, Scotland, and Manchester, England, health officers have been able to show a definite increase in respiratory diseases after smoky periods. It has been estimated that a dweller in some American cities passes through his respiratory system 28 pounds of soot per year. The smoke pall which hangs over our cities prevents sunlight, particularly the important ultra violet radiation, from reaching the level of the streets.

The great losses due to smoke—the monetary waste, the increased labor needed on account of soot, and the impaired health and nerve force of our city dwellers—would be eliminated by the use of gas for domestic and industrial fuel, due to its smokeless and ashless combustion. In the interests, therefore, of cleanliness and of public health, the use of gas must not only continue at the present rate, but must increase at an accelerated pace.

Gas and the Coal Industry

At first glance it would seem that the coal producers must view with alarm the rapid expansion in the use of natural and petroleum gases as fuel. However, closer study shows that if the coal producers read aright the signs of the times, and keep in step with the march of progress, the increasing demand for gas offers them almost boundless opportunities.

To realize these opportunities to the utmost, carbonization, cracking and gas-making processes must join, and work together toward a common end—the conversion of coal into gaseous fuel and in addition gasoline of high anti-knock value.

The coal resources of the United States can furnish an almost incalculable amount of gas. By carbonization processes coal can be converted into gas, coke and tar. The tar can be converted by the cracking process into gas, gasoline and coke. The coke from both carbonization and cracking can itself be converted into water gas or producer gas. The erection and operation of gas and cracking plants at coal mines would be a great step forward. There would be but two products to ship from the mine—gas and gasoline. The gas would be piped to points of utilization, instead of shipping the coal itself. The feasibility of long distance piping of gas is not a matter of conjecture. Its practicability is fully proved by the present piping of natural gas for hundreds of miles. The motor fuel produced at the mine by the cracking process could also be pipe-lined to consuming centers. Gasoline pipe lines are already in service in the United States.

The conversion of coal into gas and gasoline at the mines by carbonization and the cracking process would enable the coal industry to keep abreast of the newer fuel developments.

Gas is a distinctive fuel, having special advantages for domestic use and specific industrial applications. The uses of the gas furnished by the natural gas and petroleum industries are many and varied. In the oil fields natural gas facilitates the raising of oil to the surface of the ground, and operates engines for drilling, pumping, and compressing gas in natural gasoline plants. The gas is used by nearly 5,000,000 domestic consumers. Billions of cubic feet are annually consumed in manufacturing ceramics and glass, in smelting, working metals, burning brick, generating electric power and refining oil. The building of natural gas pipe lines making this fuel available in large amount has stimulated the industrial development of every region into which the lines have penetrated.

Helium from natural gas has decreased tremendously the fire hazards of lighter-than-air craft. Natural gas fractions drove the airship Graf Zeppelin around the world. Liquified portions of natural gas in pressure cylinders give the advantages of city gas to country homes.

Gas from oil stills is in demand for the enriching of manufactured gas for city use. The ever-increasing amount of gas furnished by the cracking process is used to carburet gas of low calorific value, as a refinery fuel, and in chemical synthesis.

Gas Production

The amount of natural gas and petroleum gases reaches an almost incomprehensible figure. As shown by the table below, the production of natural gas in 1929 was more than three times that of manufactured gas. The combined volume of gas from petroleum stills and from the cracking process was greater than the entire manufactured gas output of the country.

PRODUCTION OF GAS IN 1929

	Cubic feet
Natural gas*	1,800,000,000,000
Gas from petroleum distillation	270,000,000,000
Gas from the cracking process	250,000,000,000
Carburetted water gas†	255,000,000,000
Oil gas†	32,400,000,000
Manufactured gas (includes carburetted water gas, coal gas, oil gas and coke oven gas distributed by gas companies)	514,000,000,000

*United States Department of Commerce.
†American Gas Association.

In amounts of natural gas produced, the leading states were in 1928, in order, Oklahoma, Texas, California, Louisiana, West Virginia.

The recent growth of the use of gas in the United States has been amazing. There has also been rapid increase in the quantities of petroleum still gases and gas from the cracking process. This expansion in the use of gas is emphasized by the figures in the table below:

PRODUCTION OF COMMERCIAL GASES, 1919-1929
(In thousands of cubic feet)

Year—	Natural gas	Manufactured gas	Gas from petroleum distillation	Gas from cracking process
1929	1,800,000,000	514,500,000	270,000,000	250,000,000
1928	1,567,979,000	494,800,000	240,000,000	200,000,000
1927	1,445,425,000	471,000,000	215,000,000	165,000,000
1926	1,312,019,000	455,631,000	200,000,000	154,000,000
1925	1,188,571,000	421,400,000	190,000,000	112,000,000
1924	1,141,521,000	405,200,000	175,000,000	66,000,000
1923	1,006,976,000	384,722,000	150,000,000	57,000,000
1922	762,546,000	350,000,000	125,000,000	50,000,000
1921	662,052,000	226,951,000	113,000,000	33,000,000
1920	798,210,000	319,888,000	110,000,000	25,000,000
1919	745,916,000	300,000,000	90,000,000	16,500,000

The commercial gases contain enormous quantities of the lower paraffin hydrocarbons. Propane and butane are also present in solution in commercial gasoline. The amounts of gaseous paraffins available from these sources are estimated in the following table:

AVAILABILITY OF LOWER PARAFFINS, 1929*
(In thousands of cubic feet)

	Methane (cu. ft.)	Ethane (cu. ft.)	Propane (cu. ft.)	Butane (cu. ft.)
Natural gas	1,630,000,000	162,000,000	54,000,000	18,000,000
Gas from crude oil refining	164,000,000	56,700,000	32,400,000	8,100,000
Gas from cracking	137,500,000	45,000,000	12,500,000	5,000,000
Carburetted water gas	33,150,000	7,650,000	765,000	.....
Oil gas	13,000,000	4,860,000	.....	.....
Natural gas gasoline	.....	.....	2,757,000	19,950,000
Refinery gasoline	.....	.....	4,688,000	17,830,000
Total	1,877,650,000	276,210,000	107,110,000	68,880,000

*Based on Egloff and Schaad, Chem. Reviews 6, 91 (1929).

There are thus present in these gases and in gasoline huge amounts of the paraffin hydrocarbons which are readily obtainable in pure form. The large amounts of propane and butane available are of particular interest, as these two hydrocarbons are now sold in steel cylinders and are finding a market for both domestic and industrial use.

Natural Gas Composition

As may be seen from the table, by far the most abundant of the industrial gases is natural gas. This gas almost invariably accompanies petroleum underground, and frequently occurs alone. The gas may be present in the earth apart from the oil strata, or it may be dissolved in the oil under the high pressures which exist in oil fields. These pressures range from a few hundred to above 2,500 pounds per square inch. When oil is produced, gas usually accompanies it, in amounts ranging from 200 to 20,000 cubic feet per barrel of oil. Some wells have produced 100,000,000 to 150,000,000 cubic feet of natural gas per day.

Natural gas is largely made up of the gaseous members of the series of paraffin hydrocarbons. It also usually contains considerable amounts of vapors of pentane and higher paraffins, and often nitrogen and carbon dioxide. In the table below are given analysis of typical commercial natural gases, as furnished to a number of American cities.

More detailed analyses[1] showing the hydrocarbons present in three natural gases

(Continued on Page 158)

[1]Ind. Eng. Chem. Anal. Ed. 1, 226 (1929).

TYPICAL NATURAL GAS ANALYSES*

	Pittsburgh, Pa.	Cincinnati, Ohio	Los Angeles, Calif.	Bartlesville, Okla.
Methane	84.7	79.8	77.5	92.4
Ethane and higher paraffins	13.7	19.5	16.0	3.1
Carbon dioxide	...	...	6.5	1.4
Nitrogen	1.6	0.7	0.0	3.1

*Technical papers 105 and 158, United States Bureau of Mines.

*Presented at the World Power Conference, Berlin, Germany, June 16 to 25, 1930.

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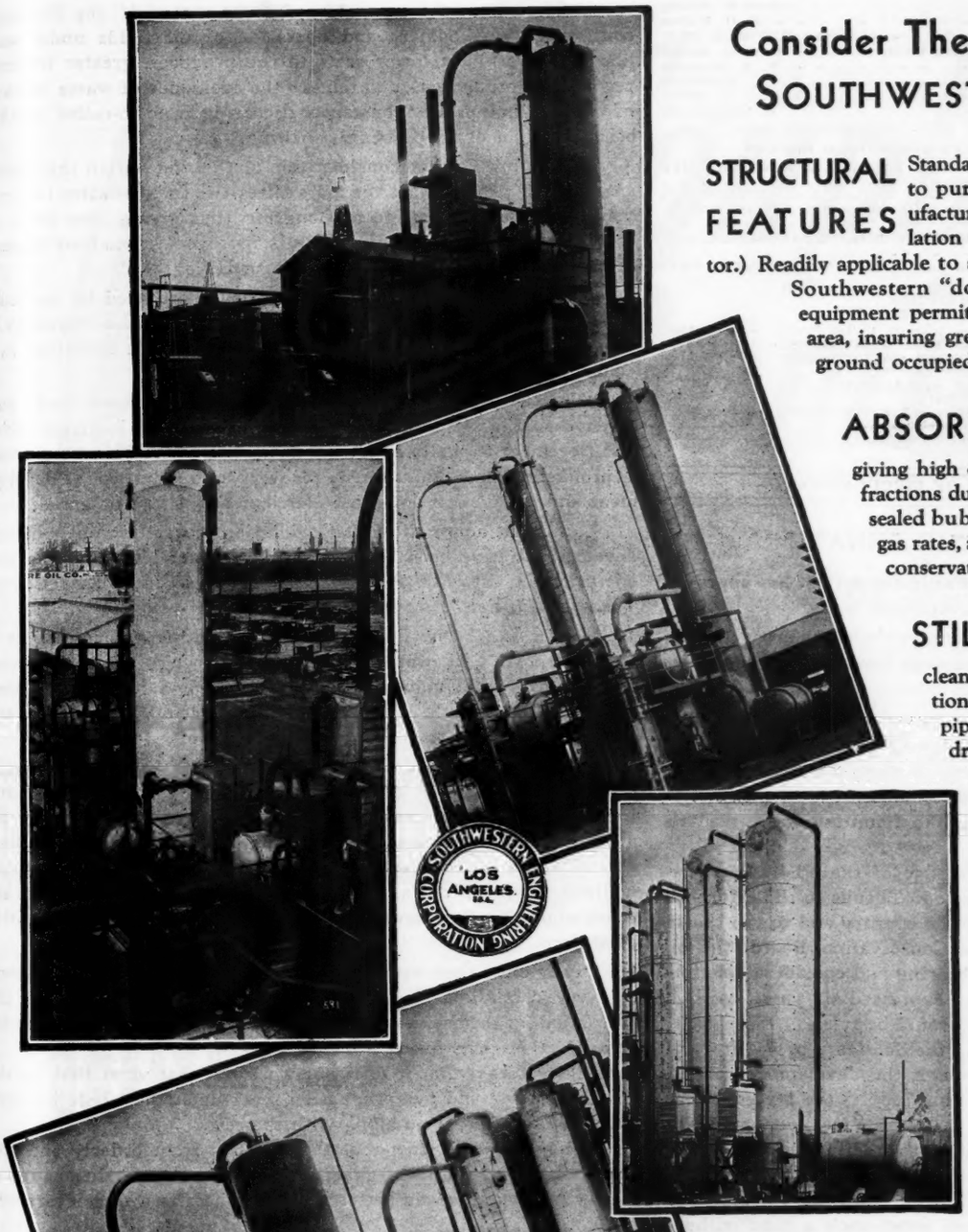

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APPROVED BY THE SENATE

The United States Senate, by unanimous action, has approved the principle of unit operation on Government lands.

This is the first official recognition in the statutes of the unit plan of operation of oil fields to prevent undue waste and overproduction.

It marks the high point in the progress of public understanding of the problems of the oil industry so far reached.

Six years ago when the movement to place the industry's case before the people was begun in these columns the mere mention of oil in either house of Congress was like flaunting the toreador's cloak in the arena.

The industry and popular knowledge of the oil business has advanced a long way in that short period. Thanks to the efforts of the industry to place its story before the country and to the broad-minded attitude of the Federal Oil Conservation Board, the oil business is assured an unprejudiced hearing and considerate action.

All of which confirms the belief expressed six years ago that the American people, given the facts, would be fair.

The legislation was requested by the Secretary of the Interior to meet the emergency existing through the development of the Kettleman Hills Field, where Mr. Wilbur reports the present waste of natural gas reaches a daily total of 400,000,000 feet even under the temporary agreement limiting the number of active wells.

The co-operative plan of operation prepared by a representative committee of operators has been handicapped by the fact that lessees of Government land could not enter such a plan without amendment of the general leasing law. These government lessees occupy 30 per cent of the field and without their participation no co-operative plan can be effective.

The amendments to the leasing law approved by the Senate will permit such participation if the lessees wish and the Secretary of the Interior approves.

The Secretary of the Interior is given discretionary power in adjusting operating requirements of existing law to meet an engineering program of rational well distribution instead of the present competitive offsetting which the Senate Committee's report on the bill describes as not only "unduly expensive but, worse than that, almost criminally waseful."

In his letter transmitting the bill to Senator Gerald P. Nye, chairman of Public Lands Committee, Secretary Wilbur said, "The present importance of preventing the physical and economic waste resulting from competitive, unregulated activity in oil and gas fields is generally recognized; the policy of orderly development can be substantially served and the interests of the United States fully protected by the enactment of appropriate legislation authorizing the Secretary of the Interior with suitable safeguards formally to approve such plans and make essential modifications of customary lease forms."

"Aside from the general good to be obtained," the Secretary continued, "development and operation of oil fields under such plans will result in lower costs to the producer, greater ultimate recovery of oil and gas, and tend to the avoidance of waste in times of overproduction now constantly occurring from so-called checker board, townlot or property line drilling."

To permit further consideration of this innovation the Senate amendments provide that the act expires two months after the convening of the next session of Congress, thus giving time for a reconsideration of the measure which is approved at this time because of the existing emergency at Kettleman Hills.

With the precedent thus established there need be no doubt about its continuance when Congress reconvenes. The unanimity in the Senate shows how strong is the case for unit operation as a common sense system.

This application of the principle to Government lands will strengthen the action of the American Petroleum Institute which last December formally endorsed unitization at its Chicago meeting as promising maximum ultimate recovery, minimum cost of development and production and most efficient utilization of gas.

Since the adoption of that resolution several examples of unit development have been reported, the most notable being the unit operation in the Van Pool of Van Zandt County, East Central Texas, which has been remarkably successful.

There can be no question that the industry is coming to it eventually. It will probably have to go through the same course as the curtailment movement, first ridiculed as impractical; then admitted in principle but left for the other fellow to adopt, and finally accepted as the only practical solution.

Faith in unlimited competition dies hard. We saw how difficult it was to convince operators that the old theory of producing the oil as rapidly as possible was all wrong. Even now there are many refiners who cannot see that continued competition in overproduction is at the root of their troubles. So with the unit plan, while it is recognized as the ideal method of operation, there are those who think they have a better chance under the old competitive conditions.

They close their eyes to the fact that it would mean maximum recovery at minimum cost and the most efficient utilization of the gas, deluding themselves with the hope that they can get some advantage others may miss.

They forget that it does not work out that way; that, on the contrary, waste and overproduction react upon the whole industry and eventually hit them along with the rest.

They overlook, too, that the benefits from orderly and economic operation would be general and that better conditions in the oil business would mean better times for them as well as everybody else.

The Senate in approving the unit operation bill at Kettleman Hills did so because, among other reasons, greater benefits could reasonably be expected to accrue to the Government, the ultimate returns to which "under rational development and operation without waste are conservatively estimated at hundreds of millions of dollars."

The ultimate and most convincing argument that will put the unit plan over will be the obvious financial gain, the same demonstration that won for the curtailment of overproduction of crude and is making headway for the curtailment of overproduction of gasoline and refined products.

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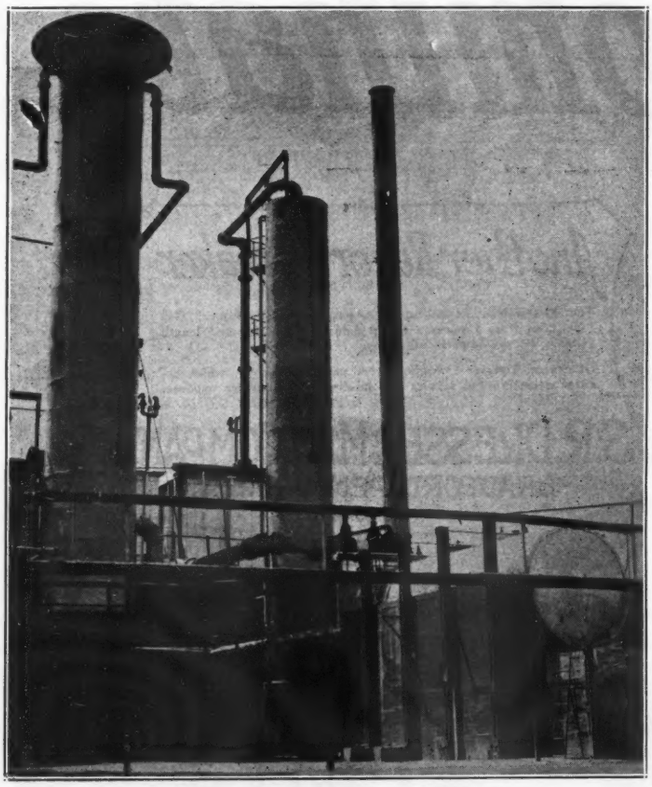
Louisville Refining Co. Indirectly Heats Pressure Distillate to Gain Color Stability. Small Still Has Large Capacity

By W. T. Ziegenhain

By using a rather unique hook-up for rerunning pressure distillate, the Louisville Refining Co., at Louisville, Ky., has materially lessened the problem of color stability in its cracked gasoline. The feature of the method is the elimination of any chance of the distillate to be locally overheated.

Briefly described, the distillate to be rerun enters the unit through a closed coil in the top of the fractionating tower where it is preheated. It then passes through 380 feet of 2-inch pipe submerged in a bath of oil in a shell still, where the major portion of the heating is done. The heated distillate is flashed in a tower where fractionation takes place. The overhead stream is recovered as endpoint gasoline. The reflux passes into the still to act as a heating medium and then through the cooling box to storage as furnace oil.



The rerun unit includes the shell still shown here and the larger of the two towers. The relative size of the still and tower is readily apparent.

Description of Tower

The tower at first appears comparatively large for the still it serves, the tower being 8'x49' and the still is 8'x30', but the system is heavily insulated and is efficiently handling 1,400 bbls. of pressure distillate daily. The tower extends 60 feet above the ground but the lower 11 feet is simply a skirt to give the needed elevation for the knock-back to return to the still.

The baffle sections within the shell of the tower can be described best by making reference to the accompanying drawing. The upper 4 feet of the tower contains a closed coil through which the cold distillate is pumped on its way to the still. The section just below the coil is made up of five-bubble cap trays spaced 2½ feet apart. Immediately below this section is a 5½-foot layer of half-bricks piled in without any regularity. These aid in the fractionation and also catch any deposits that might otherwise form on the bubble trays overhead.

The pressure distillate inlet is located below this section and is in the shape of a spray coil, with a header at right angles to the feed pipe. Small perforated lines extend out from this header and provide a complete distribution of the distillate as it is pumped in.

The baffle section immediately below the spray coil is 6 feet thick and is built up with vitrified brick set on end. The bricks are closely arranged to allow for maximum surface exposure. Below this section is a similar section of brick set on end, the lower section being 4½ feet thick. These two sections are separated by a 4-foot empty compartment. The lower 4½ feet of the tower acts as a reservoir for the knock-back and this section is also fitted with steam coils to operate as a reboiler, but this has not been found necessary. Manholes are provided above each section for cleaning.

Shell Still

The other essential part of the unit is the shell still which was converted to rerun duty after several changes were made. Most important of these was in the method of heating the oil. To accomplish this indirectly, 18 lengths of 2-inch pipe 20 feet long were connected to make a continuous coil. This coil is suspended in the still in three tiers, the bottom tier coming within 1 foot of the bottom of the still.

Below these are two steam pipes, one for live steam and the other for exhaust steam. These pipes lay on the bottom of the still and are perforated along their entire length with one-fourth-inch holes. The only other line in the still is the inlet for the knock-back from the tower. This line enters the still at the end near the top as shown, but instead of allowing the knock-back to enter the oil body there, it is led to a point near the front of the still and near the bottom, where the temperature on the still bottom tends to be highest.

Fire Box

The original still setting was changed so that now the firing is done through a Dutch oven. The oven extends approximately 7 feet ahead of the front of the still. An arch was built in the fire box to better distribute the heat, and this tends to eliminate local heating. This arch extends back 12 feet under the still bottom and the crest of the arch comes within 15 inches of the shell. The arch is made of fire brick and supported by the side walls. The brick work of the arch is grouted into the well along its entire length and the weight of the arch tends to hold it together. As a result of this arch there has been no expense incurred in replacing or repairing the still bottom thus far, after more than two years of use.

A checker brick wall located about 18 inches back of the end of the arch under the shell of the still helps to distribute the hot gases and slows up the travel of the gas so that the stack temperature at the base is near 450° F.

Operation of Unit

As was stated previously, the cold distillate is charged through the closed coils in the top of the fractionation tower and here it is heated to approximately 225° F. It then passes through the long coils in the shell still where the temperature is raised to 320° F. The oil in the still, which serves as a bath for the coils, is held between 350° to 360° F. The liquid level in the still is kept at about one-half full so it is not difficult to maintain a very exacting temperature control.

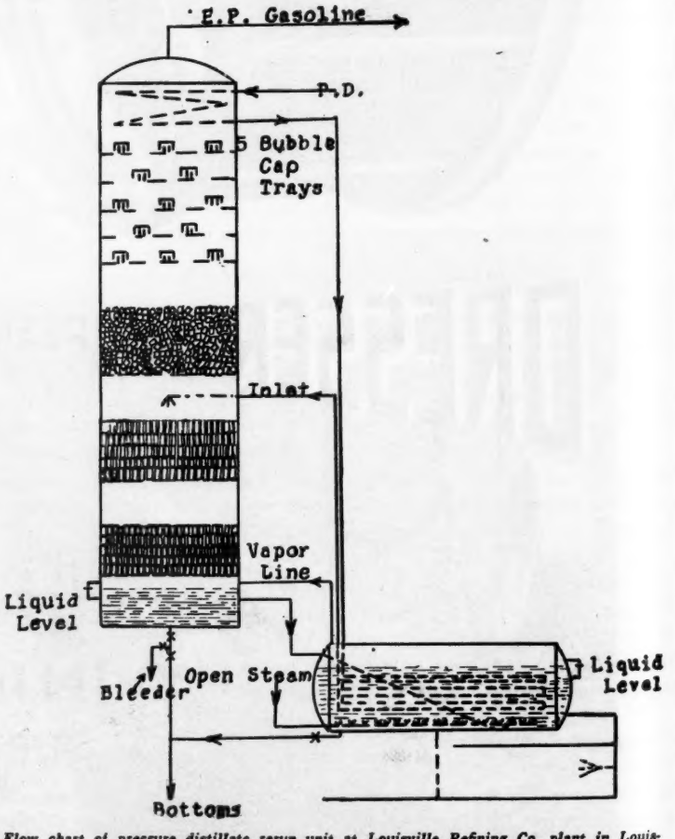
The distillate enters the tower just above the midsection as shown, the vaporized portion passing upwards while the unvaporized portion passes downward through the brick section and most of it returns to the still as knock-back. The temperature of the incoming distillate is high enough to carry all of the gasoline fraction in the vapor state and fractionation of these vapors is obtained in the upper portion of the tower. The effectiveness of the fractionation is seen by the following distillation test taken on a run-down tank sample.

	Gasoline	Bottoms
Color	26	(*)
Gravity at 60	57.5	33.6
Initial	92	444
10 per cent	155	450
20 per cent	183	455
30 per cent	229	459
50 per cent	285	...
70 per cent	335	...
80 per cent	367	...
90 per cent	397	...
95 per cent	...	...
Endpoint	424	...
Recovery	96.5	..
Residue	1.0	...
Loss	2.5	...

*Dark straw.

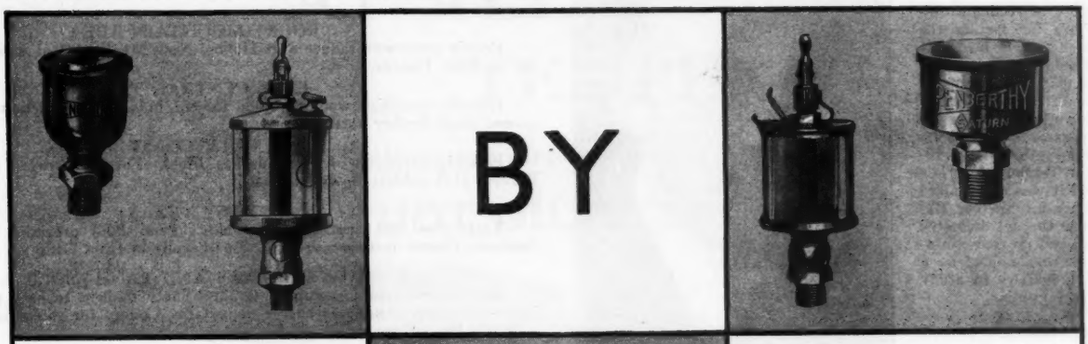
The total overhead from the tower approximates 71 per cent as the gasoline fraction and the bottoms will run close to 28 per cent with a 1 to 2 per cent distillation loss. A liquid level of approxi-

(Continued on Page 116)



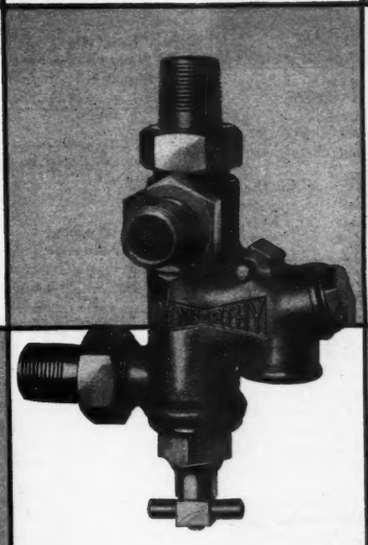
Flow chart of pressure distillate rerun unit at Louisville Refining Co. plant in Louisville, Ky. The pressure distillate is preheated in the coils in the top of the tower and final heating is done in submerged coils in the still. The heated pressure distillate enters the tower near its midsection, the vapors forming an overhead cut of endpoint gasoline and the bottoms falls back into the shell still to serve as the oil bath and the overflow is pumped away as furnace distillates.

RECOMMENDED

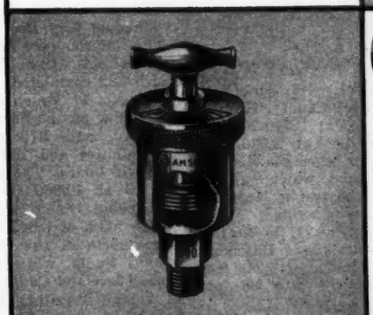


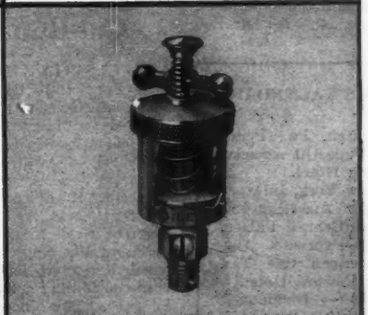
BY

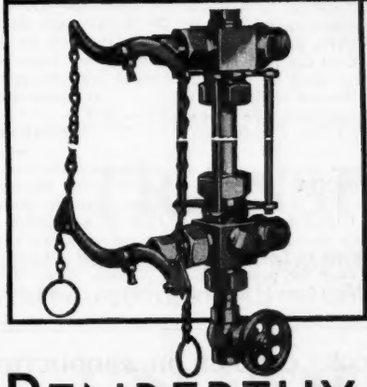
MANY



USERS







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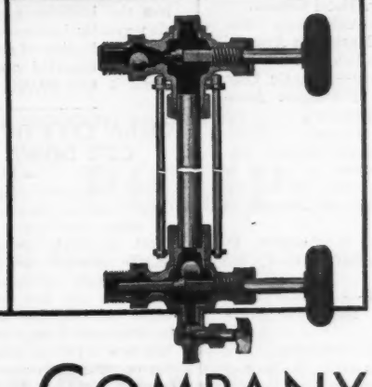
They are stocked by leading supply houses.

PENBERTHY PRODUCTS



PENBERTHY INJECTOR COMPANY

ESTABLISHED IN 1886

DETROIT

CANADIAN PLANT WINDSOR, ONT.

DR. MACKENZIE HEADS AMERICAN SOCIETY FOR TESTING MATERIALS

The untiring work of K. G. Mackenzie, consulting chemist for The Texas Company, in the interests of standardizing test methods within the petroleum division of the American Society for Testing Materials was recognized during the thirty-third annual meeting of the society in Atlantic City last week when he was elected to its presidency. The organization comprises committees from every industry with the purpose of securing uniformity in the methods for testing the basic materials, which enter into the processing and the products of these industries with respect to their usefulness.

Mr. Mackenzie is the first to be named as president of the organization from the oil industry. The organization had its origin as the American section of the International Society for Testing Materials 33 years ago. In 1902 it was reorganized as the American Society for Testing Materials. At that time the oil industry was in its infancy and had no representation until a committee was named as a composite of several industries to study the testing of lubricating oils.

The committee D-2, as it is now known, grew from this start and is now recognized as the authority in test methods on all petroleum products.

Long Service

Mr. Mackenzie served as secretary on committee D-2 from 1914 to 1922 and as vice chairman from the latter date until he left the chair to Dr. T. G. Delbridge of the Atlantic Refining Co. a week ago in order to devote more time to his new office.

After graduating from Yale with the degree of Bachelor of Philosophy Mr. Mackenzie resumed his duties there and received the degree of Master of Science in 1909. Early in the same year he was introduced into the oil business when he joined the Barber Asphalt Co. at Maurer, N. J., as research chemist. He left two years later and entered the laboratories of the Nairn Linoleum Co. Then in

Dr. K. G. Mackenzie

1911 he again took up his work with petroleum as consulting chemist for The Texas Company.

In addition to his work in the A.S.T.M. he is chairman of the specification committee of the American Petroleum Institute.

THE OIL MAN'S CALENDAR

July 8—Pittsburgh, Pa., Pennsylvania Grade Crude Oil Association, William Penn Hotel.

August 4-9—New York, International Exposition of American Import Trade, Grand Central Palace.

September 2-4 — Toronto, Ontario, North American Gas Tax Conference, King Edward Hotel.

September 8-12 — Cincinnati, Ohio, Eightieth meeting, American Chemical Society, Hotel Gibson.

September 17—Columbus, Ohio, Ohio Petroleum Marketers Association, Deshler-Wallick Hotel.

September 17-19—Atlantic City, N. J., National Petroleum Association, Hotel Traymore.

September 29-October 4—Pittsburh, Pa., petroleum section, National Safety Council.

October 4-11—Tulsa, Okla., International Petroleum Exposition and Congress.

October 6-11 — Washington, D. C., Sixth International Road Congress.

October 14-16 — Kansas City, Mo., convention, Big Four State Jobbers.

October 22-24—Pittsburgh, Pa., Transportation meeting, Society of Automotive Engineers.

November 2-5—St. Louis, marketing congress, Independent Oil Men of America, Statler Hotel.

November 10-13—Chicago, Eleventh annual meeting, American Petroleum Institute, Stevens Hotel.

December 1-5—Memphis, Tenn., Ninth Annual Asphalt Paving Conference, the Asphalt Paving Conference, the Asphalt Institute and Association of Asphalt Paving Technologists.

Bradford-Allegany Producers Agree to Cut Runs 50 Per Cent

WELLSVILLE, N. Y., June 30.—The New York State Oil Producers Association, which met at Bolivar Monday, adopted for July and August a 50 per cent curtailment of crude oil production on a basis of April runs.

During June the reduction has been 20 per cent. Bradford also has adopted 50 per cent curtailment. All Pennsylvania grade oil fields south of Bradford, including West Virginia and southeastern Ohio, which heretofore have not curtailed, are now considering a 30 per cent reduction in runs. This increase in curtailment will more than correct overproduction unless the business and industrial depression greatly increases. The present total daily production of all Pennsyvania grade crude is reported about 75,000 bbls. In April it was 80,000 bbls.

OKLA. CITY OPERATORS CUT DOWN PRODUCTION

The proration plan in the Oklahoma City Pool has been temporarily changed to allow the pipe line companies to catch up with the crude oil now held in the storage tanks in the pool. The new schedule allows operators to produce the wells one day out of each 12 days, while the old plan allowed the wells to be produced 2 days out of each 12 days. The new schedule was worked out among the operators over the week-end, and became effective at once.

Umpire Otto Bradford estimates that between 500,000 and 550,000 bbls. of oil is now held in lease storage. Some of the wells have been unable to take their allowable flow because of the lack of storage and the inability of the pipe lines to handle the oil. The majority of the lease storage has accumulated in the last 30 days partly due to the large completions which have been given preference in order that operators might get an initial production gauge.

The pipe line companies do not plan to run a greater amount of oil at this time, but have assured the operators that connections will be made when wells are completed. The only increased outlet for the field at the present time is by tank cars.

It is expected the new production plan will remain effective only long enough to empty lease storage, and this is expected to take not over two weeks.

High Spots in Field News

SOUTHWEST TEXAS

Gas wells feature in Pettus Field, Bee County. Wild well blows out.

CALIFORNIA

Gain in production at Santa Fe Springs brings warning. Gasoline market weak.

KANSAS

Eastborough discovery threatens town lot operations. Several wildcat showings in State.

OKLAHOMA

Oklahoma City, Konawa, Wanette and West Chandler Pools broadened by new completions.

ROCKY MOUNTAIN AREA

Prairie gets two producers at Hobbs, New Mexico. Pool extended. Good showing in Eddy County.

EAST CENTRAL TEXAS

Humble extension well was good for 861 bbls. but production is not expected to extend much farther north.

GULF COAST

Possible extension of Port Neches Field. Further proving up of Moss Bluff. Barbers Hill wildcat flows by heads.

WEST TEXAS

Yates Pool cut another 10,000 bbls. Penn Pool proration to be considered. Andrews County test discouraging. Small wells in Irion County.

NORTH TEXAS AND PANHANDLE

Semiwildcat area in southern Grant County thought to have good chances. The Texas Company completes best well in Gray County for some time, 2,516 bbls. and 4,000,000 feet of gas.

NORTH LOUISIANA-ARKANSAS

Bienville Parish wildcat blows in as 41,000,000-foot gas well. Well in Athens district, Claiborne Parish, is 20,000,000-foot gasser, gasoline content running 793 gallons per million feet. Regarded as most important find since Zwolle discovery.

Late Fields

KANSAS

C. B. Davis' No. 1, SW cor. NW, Section 22-20-10w, Rice County, Kansas, had a showing of oil at 2,510-20 feet, and was drilling deeper at 2,535 feet. The test has had two other showings of gas at shallower depths, which gas has been bradenheaded. The test is located a quarter mile east of production.

Rogers and others' No. 1, in Section 27-27-10w, on the townsite of Raymond, is landing the 5-inch casing at 3,245 feet, and is expected to drill into the pay horizon in a few days.

Gypsy Oil Co. has completed the fifth well in the State Line Pool, in Sumner County, Kansas. The new well is No. 2 Enderude, NW NW SW, Section 16-35-3w. It made 125 bbls. on the first hour's gauge from the Wilcox sand at 4,770-72 feet. The gas was estimated at 3,000,000 feet. It is located a quarter mile north of the same company's No. 1 Enderude, in the same section.

CALIFORNIA

LOS ANGELES, Calif., July 1.—The Venice Oil Syndicate's No. 1 Venice, in the Playa Del Rey Field of Los Angeles Basin, was finished over the past week-end flowing 3,500 bbls. of crude oil and 4,000,000 feet of natural gas daily from 6,093 feet. This is the largest well finished in this field up to the present time and indicates the possibility of developing good production in wells located nearer the apex of the structure than previous completions.

OKLAHOMA

Three new wells were completed in the Oklahoma City Pool on July 1, and the gauge of the pool on the same day was 93,244 bbls. from 53 producing wells, with 322 completed. Sinclair Oil & Gas Co.'s No. 11 Vencl, SW cor. SE Section 31-11-2w, on the South line of Oklahoma County, made 370 bbls. of oil the first 15 minutes and 12,515 bbls. of oil the first 12 hours. The gas volume was estimated at 40,000,000 feet. The well is producing from the Simpson sand at a total depth of 6,649 feet. It is one location north of the Continental Oil Co.'s No. 1 Sudik, which extended production into Cleveland County.

Indian Territory Illuminating Oil Co. completed the two other wells. No. 3 S. Peterson, NE cor. SE SW Section 25-11-3w, made 317 bbls. of oil in the tanks the first 20 minutes. It was then shut in for large connections. The gas volume was estimated at 30,000,000 feet.

(Continued on Page 156)

MAGNETIC STORM

Tucson observatory of the U. S. Coast and Geodetic Survey report that a moderate magnetic storm started at 8 p. m. June 28 and ended at 8 a. m. June 30. central standard time. Their telegrams are as follows:

"Storm began 28th. Two. Moderate."

"Storm ended 30th. Fourteen."

SCORE CARD ON OIL PRODUCTION

Below is shown allotted average daily production in the United States, April to December, inclusive, suggested by the Committee on Economics of the Federal Oil Conservation Board, and the actual daily average production during the week ending June 28:

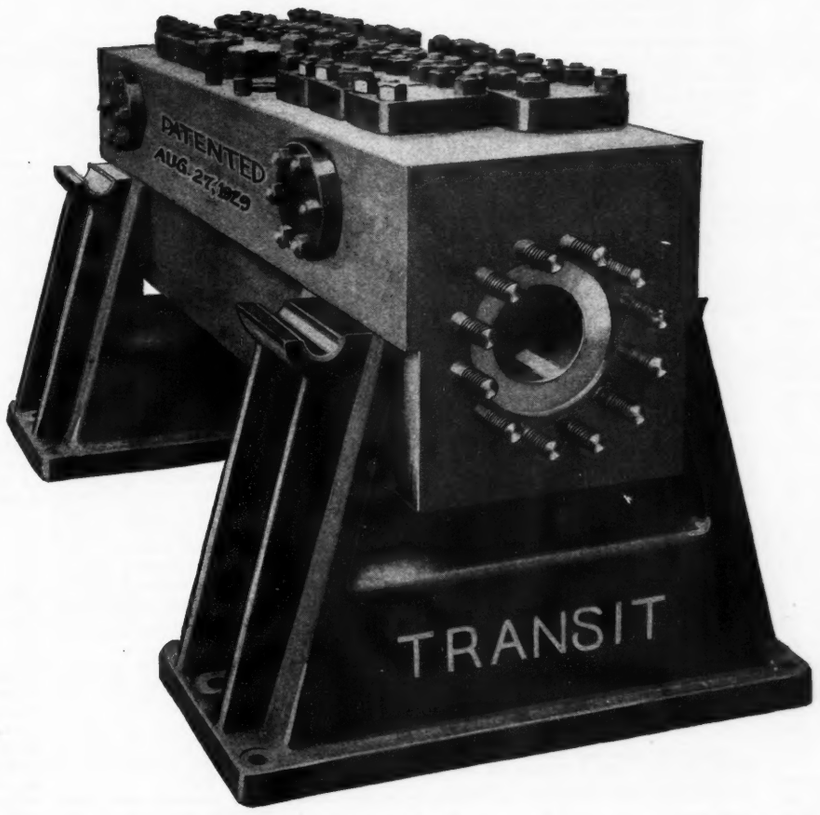
	Allotted bbls.	Actual bbls.	Over bbls.	Under bbls.
California	610,000	603,500	.....	6,500
Oklahoma	655,000	666,258	11,255	.....
Texas	750,000	870,006	120,006	.....
Other fields	480,000	479,490	.....	510
Total	2,495,000	2,619,251	131,261	7,010

Net average daily overproduction 124,251 bbls.

CORRECT ALIGNMENT AT ALL TEMPERATURES

Nothing is more important in a

HOT OIL PUMP



The illustration shows very clearly how this is accomplished in a

TRANSIT HOT OIL PUMP

Note that the cylinder is supported at the center line of the bore, permitting free expansion in all directions with no change in the alignment.

Agents

FRICK-REID SUPPLY CORPORATION
Tulsa, Okla., or any store.

REPUBLIC SUPPLY COMPANY
of California
Los Angeles, California

E. L. WILSON HARDWARE CO.
Beaumont, Texas.

NATIONAL TRANSIT
Pump & Machine Co.
Oil City, Pa.

DISTRICT OFFICES

NEW YORK
CLEVELAND
PHILADELPHIA
HOUSTON
TULSA
PITTSBURGH
LOS ANGELES

Agents

F. C. RICHMOND MACHINERY CO.
Salt Lake City, Utah.

REEVES & SKINNER MACHINERY CO.
St. Louis, Mo.

Important Oklahoma Pools Extended

Oklahoma City, Konawa, Wanette and West Chandler Broadened by New Completions. Production Held Down

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Production in Oklahoma is being held near the estimated requirements for the week ending June 28. The average daily production was approximately 666,000 bbls. per day for the seven days. New extensions are being found in several pools of the State. The Oklahoma City Pool was extended almost a mile northwest towards the city. New wells are extending production in the Konawa Pool, in Seminole County. Wanette Pool in Pottawatomie County now ranks as a major producing area in the Greater Seminole group. A new producing horizon was found on the east side of the Cement Pool in Caddo County.

Completion of new producers in the northern part of the Oklahoma City Pool is being delayed on account of sand cutting connections. Tom Slick Oil Co.'s No. 1 Classen, NW cor. SE NW, Section 2-11-3w, near the city limits, was not as large a well as expected. It flowed 128 bbls. the first hour with an estimated 8,000,000 feet of gas. The oil carried a large amount of sand but it was doing little damage to connections. The well is producing from the Simpson sand at a total depth of 6,608 feet. The same company's No. 1 Foote, NE cor. SW, Section 2-11-3w, was opened again for seven minutes and was then shut in, no gauge was taken as the sand cut the connections between the lower master gate and the sand trap on top the casing. It was open for 55 minutes early in the week. The gas is estimated at 110,000,000 feet.

Sinclair Oil & Gas Co.'s No. 7 School Land-54, NW cor. SE NE, Section 36-11-3w, in the south end of the pool, an old gas well drilled deeper to a total of 6,683 feet, made 400 bbls. of oil the first hour, and an estimated 10,000,000 feet of gas.

The Pandem Oil Corp. and others' No. 1 St. Joseph Orphanage, in Section 17-12-4w, lost the casing in the hole Saturday. The crew had recovered 5,100 feet of pipe when it parted and 1,400 feet of the drill pipe dropped back into the hole. The total depth of the test is 6,532 feet. The drill pipe had been stuck for about two weeks.

Northwest Extension

The Oklahoma City Pool was extended a half mile northwest and towards the city limits by the completion of Wirt Franklin Petroleum Corp.'s No. 1 Wright, NE cor. NW Section 2-11-3w, in northern part of the field. The well proves a large area in which a number of independent operators own small tracts on which numerous locations have been staked. The well was bailed down 1,400 feet, and started cleaning itself, flowing over the top of the crown block. The first hour's gauge after the oil was turned into the separators was 315 bbls. The second hour it made 350 bbls. The gas volume was estimated at 1,500,000 feet. The casing was landed at 6,305 feet and the total depth of the well is 6,561 feet. Some express the opinion that a number of promotion tests have been waiting on the outcome of this well. The well made 5,805 bbls. of oil the first 24 hours, with some back pressure.

111,000,000 Feet of Gas

Tom Slick Oil Co. completed another well in the north end of the field after bailing all day, proving the trend of production in the north part of the pool. The well was No. 1 Foote, SE cor. SW Section 2-11-3w, and completed through a sand trap and nothing in the way of oil was to be seen as the well blew into a separator on top of the casing. After blowing open for 55 minutes it made 475 bbls. of oil and was then shut in because of sand cutting the connections. The gas volume was estimated at 110,000,000 feet and some believed the well would make 10,000 bbls. of oil. It was producing from the Simpson sand at a total depth of 6,588 feet. It was bailed down 2,000 feet before flowing into the tanks.

The completion of the above wells proves the north end of the field and some believe that production may be found in all parts of Section 2-11-3w. More than a score of locations were made following these completions on many small tracts located in this section.

The south end of the field also had its share of completions during the first part of the week. Indian Territory Illuminating Oil Co. completed a pair on the School Land in NW of Section 36-11-3w. The No. 1, NE cor. NW Section 36-11-3w, made 425 bbls. the first hour and 1,185 bbls. in 4 hours and 25 minutes and 4,734 bbls. in 17½ hours. The gas was estimated at 50,000,000 feet from a total depth of 6,675 feet in sand. The other well was No. 2 on the SE cor. NE NW Section 36-11-3w, one location south of No. 1. The well made 280 bbls. the first 30 minutes, with a gas volume of 50,000,000 feet, from sand at a total depth of 6,641 feet. It made 4,482 bbls. in 11½ hours.

The Coline Oil Co.'s No. 6 Clauer, SE cor. SW SE Section 25-11-3w, in the center of the field, was bailed in for an estimated flow of 7,000 bbls. of oil and 70,000,000 feet of gas from a total depth of 6,732 feet. The well was shut in after cleaning itself and was to be opened again for its initial production test. Considerable sand was showing in the flow when the test was shut in. Same company's No. 7 Olds, SW cor. NW NW Section 24-11-3w, flowed 1,763 bbls. the first 15½ hours from a total depth of 6,634 feet in sand. When No. 6 Clauer was opened it made 300 bbls. the first hour and 5,191 bbls. of oil the first 22 hours and 20 minutes with 7 per cent water.

Near City Limits

Another test near the Oklahoma City limits was completed during the week. The well was fitted with sand traps and was completed in the same manner that other wells in the northern end of the field have been. The new well was Tom Slick Oil Co.'s No. 1 Classen, NW cor. SE NW Section 2-11-3w. It was bailed down and made 1,711 bbls. the first 15½ hours. The total depth of the well is 6,608 feet in Simpson sand.

Indian Territory Illuminating Oil Co.'s No. 3 Canfield-Button, NW cor NE SW Section 19-11-2w, in the east central part of the field, was bailed down 2,000 feet and made an average of 350 bbls. an hour, cutting about 2 per cent. The well is producing from the Silicious lime at a total depth of 6,370 feet. It made 6,494 bbls. oil and 140 bbls. water in 18¼ hours.

On the Mary Sudik lease, Indian Territory Illuminating Oil Co.'s No. 5 Sudik, SW cor. NE SW Section 31-11-2w, was bailed down to the 4,000 feet level and failed to flow. It was believed the hole is bridged near the bottom, and it may be necessary to rig up standard tools to drill out the bridge, and then agitate. The total depth is 6,664 feet. The same company's No. 4 Mary Sudik, SE cor. NW SW Section 31-11-2w, was completed early in the week and was opened for its initial production test June 27 and made 513 bbls. of oil the first 30 minutes.

Defining Southwest

The southwest part of the field is being defined on the Sinclair Oil & Gas Co.'s School Land-67 lease in Section 36-11-3w. The second well on the lease to show water was No. 4 School Land-67, C NE SE SE Section 36-11-3w, the most southern drilling test. It found water in sand at 6,781-91 feet, and was drilling deeper at 6,810 feet. The No. 2 School Land-67, a location north, also showed water when completed a few days ago. These tests, it is believed, define the productive area on the southwest. The pool has been defined on the east with water wells. The west and north areas are still prospective territory.

Oklahoma County Wildcats

Magnolia Petroleum Co. and Ramsey Petroleum Co.'s No. 1 Johnson, NE cor. SW, Section 35-13-3w, near Britton, north of Oklahoma City, was drilling in Sylvan shale at 6,775 feet. The top was found at 6,765 feet, with nothing showing.

Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 1 Dills, SE cor. NW, Section 17-13-3w, was rigging up standard tools at a total depth of 6,553 feet.

Mid-Kansas Oil & Gas Co.'s No. 1 Messer, SW cor., Section 32-14-3w, was drilling at 4,100 feet.

Ryan Consolidated Petroleum Corp.'s No. 1 Lawton, NE cor. NW, Section 3-11-2w, several miles east of the main pool, swabbed the hole dry at a total depth of 6,646 feet where it had water and a rainbow show of oil. It will probably be drilled deeper.

Pandem Oil Corp. and J. F. Cunniff's No. 1 St. Joseph Orphanage, NW cor. NE SE, Section 17-12-4w, was lubricating and trying to loosen the tools at a total depth of 6,532 feet. The tools are stuck in the bottom of the hole and the crew has been jarring on them for several days.

G. D. Warr and others' No. 1 Castle, SW cor. NW, Section 20-11-3w, south of the city, has cemented the 7-inch casing at a total depth of 6,220 feet.

In the Chandler Pool

Magnolia Petroleum Co.'s No. 1 Benedict, SE cor. NW, Section 7-14-4, west of Chandler in Lincoln County, made 5,856 bbls. on the gauge of June 27, from sand at 5,027-39 feet. Same company's No. 2 Benedict, NE cor. SE NW, Section 7-14-4, made 4,300 bbls. a day before being shut in for the proration period. It was the first large well completed in the west extension and was completed April 10. The best day's production from No. 2 Benedict was 4,950 bbls. from the sand at 5,070-79 feet. It was cutting 3 per cent when shut in. Tom Slick Oil Co.'s No. 1 fee, NE cor. SW, Section 7-14-4, was averaging 110 bbls. an hour from a total depth of 5,085 feet. It is expected to be drilled deeper.

Magnolia Petroleum Co.'s No. 2 Decker, SE cor., Section 8-14-4, which was completed April 7 in the Hunton lime at 4,650 feet, made around 100,000 bbls. of oil since that time is now swabbing all water and will be drilled deepr. Prairie Oil & Gas Co.'s No. 1 Mayer, NE cor. NW, Section 17-14-4, has a hole full of water from the Hunton lime at 4,700 feet. The test is a diagonal offset to the No. 2 Decker.

New Wells Due in Konawa

New tests are expected to be completed in the Konawa Pool during the week. The Konawa Pool in southern Seminole County made 24,448 bbls. on the gauge of June 27, with several wells off production. C. L. McMahon, Hilton Phillips and others' No. 1 Chupco, SE cor. NW SE Section 20-6-6, is flowing steadily from the pay at 2,948 feet. It made 2,817 bbls. on the gauge of June 27. Same operators' No. 2 Chupco flowed 1,902 bbls. from the pay at 2,910-15 feet. Hilton Phillips, C. L. McMahon and others' No. 2 Burgess, NE cor. NW NE Section 29-6-6, was producing from pay at 2,910-49 feet, with the total depth 2,966 feet. It made 2,550 bbls. in 24 hours. Empire Oil & Refining Co.'s No. 1 Caesar, SW cor. NE SW Section 21-6-6, had 5,000,000 feet of gas at 2,702 feet. Gypsy Oil Co.'s No. 1 Davis, in Section

(Continued on Page 74)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Cleaning out 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Rigging up standard tools 4,660 ft.; cleaning out.

BECKHAM COUNTY

White-Woodward & Peters' No. 1 Green, C SW SW Sec. 34-10-24w	Shut down 1,200 ft.
Ray Johnson and J. R. Cuniff's No. 1 Brower, C NW Sec. 29-10-22w	Drlg. 3,207 ft.
Producers Exploration Co.'s No. 1 Sidell, SE cor. SW SW Sec. 17-9-22w	Shut down 2,402 ft.
Carson et al's No. 1 Danby, SW cor. SE NE Sec. 20-8-22w	Shut down 1,575 ft.

BLAINE COUNTY

Lowen et al's No. 1 Unknown, NW cor. SW NW Sec. 17-16-11w	Spudded and shut down.
Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 12-19-10w	Drlg. 3,556 ft.

CADDO COUNTY

W. J. Hartley's No. 1 Galbreath, SE cor. NW SE Sec. 29-5-12w	Shut down 3,894 ft.

CHEROKEE COUNTY

Weaver & Proctor's No. 1 Benge, NE SE Sec. 8-14-21	Rig.

CLEVELAND COUNTY

Harris et al's No. 1 Highbee, SE NW Sec. 20-6-1	Drlg. 6,420 ft.
Daniels & LeWright's No. 1 Vandever, C SW Sec. 15-7-1w	Shut down 3,130 ft.

COAL COUNTY

A. M. Van Orden's No. 1 Jamison, SE NW Sec. 31-1-9	Drlg. 1,300 ft.
Blackwell O. & G. Co.'s No. 1 L. Jackson, NW cor. Sec. 26-3-9	Rig.
W. E. McGraw's No. 1 King, C SW NE Sec. 11-1-8e	Drlg. 3,030 ft.

COMANCHE COUNTY

Croy & Young's No. 1 Cline, NW NE NE, Sec. 8-3-10w	Rig.
Shasta Oil Co.'s No. 1 Romwalt, SW NW, Sec. 11-2-10w	Rig.
V. Wright's No. 1 Indian Land, SE SW Sec. 29-2-9w	Swabbed 4 bbls. 1,920-34 ft.; shut down; total depth 2,018 ft.
G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	Shut down 1,450 ft.
Green et al's No. 1 Wilson, C NE SW Sec. 14-1-12w	Shut down 4,055 ft.

GARFIELD COUNTY

Shell Petroleum Corp.'s No. 1 Loomis, C NW NW Sec. 32-23-4w	Drlg. 5,765 ft.

(Continued on Page 122)

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Eastborough May Be Closely Drilled

Discovery in Wichita, Kans., Suburb Threatens to Start Town Lot Operations. Numerous Scattered Wildcat Showings

By W. A. Spinney
Staff Correspondent, Kansas Fields

The production of Kansas increased in the week ending June 28 about 2,500 bbls. a day to 133,855 bbls. a day. The only new well of importance in the State was found east of Wichita, in Sedgwick County. It was estimated at 1,500 bbls. a day. Oil production in McPherson County, was averaging about 26,300 bbls. from 91 producing wells. Voshell, one of the McPherson County pools, had an average of 21,550 bbls. a day and the Ritz Pool approximately 4,900 bbls. a day. The potential production of the Voshell Pool was estimated at 45,000 bbls. and the potential of the Ritz Pool at 10,000 bbls. a day.

Of the seven air ports located to the east, northeast and southeast of Wichita several may be tested for oil soon. The Braley air field is already under lease and a test is expected to be started in the near future. To the northeast of the Fisher & Lauck's large well, in Eastborough, Spencer and Rounds are drilling a test which is expected to reach the pay horizon soon and extend the production three-quarters of a mile northeast. It is only a location west of the Travel-Air Field.

Fifteen new tests may be started at once in the new Eastborough Pool just east of the city limits of Wichita. Operators have been unable to agree to a curtailment plan satisfactory to all the owners of leases in the area. The proration committee has been at work on an orderly plan of development but owing to the number of 5 and 10-acre tracts and town lots leased by different operators it has been impossible thus far to get all the operators to agree. It is estimated these wells will cost $40,000 each and the 15 wells are expected to reach a total of $600,000.

All the oil operators owning acreage near the new Fisher & Lauck well, SW cor. SE, Section 19-27-2, have agreed to a curtailment plan except the Derby Oil Co. This company is starting the west offset with rotary tools.

The discovery well which is estimated at 1,500 bbls. a day is being pinched to about 200 bbls. a day owing to lack of pipe line facilities. Some believe unless curtailment is effective in the area that Eastborough will be dotted with rigs near the best residential section of Wichita.

E. F. Jones and others have announced a new location east of Wichita in the SW cor. NW SW, Section 20-27-2, about a half mile east of the Fisher & Lauck's well. The test is located on acreage owned by the Shell Petroleum Corp.

Rice County's Activities

The Raymond district in Rice County is becoming an important one. On the townsite of Raymond several tests are drilling and one is nearing the deep Silicious lime pay. The test is Kirk, Jones & Rogers' No. 1 Gill in Section 27-20-10w, Rice County. It was drilling at 3,242 feet on the last report. A showing of oil was found in the Lansing series at 3,057 feet. If the test becomes a producer it will extend the Schurr Pool more than a mile to the southeast, and will result in a town lot drilling campaign.

The second showing of gas was found in the test being drilled by C. B. Davis east of the production in the Schurr Pool in Rice County. It is located in the SW cor. NW Section 22-20-10w. The new gas sand was found at 2,315-26 feet, from which the gas production was estimated at 4,000,000 feet per day. The first gas sand was found at 2,222-29 feet, where the gas was estimated at 2,000,000 feet. Other tests in the area have found water in these horizons. It is believed the log of the well now checks higher than any test drilled in the Schurr district.

The Gypsy Oil Co. has made the location for a wildcat rotary test east of the Schurr Pool in Rice County. The test is located in the SE cor. NE NE Section 35-20-9w, on a large block of acreage in the southeastern part of the county. It is about 6 miles east of Raymond.

Two more tests are expected to get under way during the week in western Kansas in the Lewis district in Edwards County. These are Barnsdall Oil Co.'s No. 1 Carroll in Section 32-25-17w, southeast of the same company's No. 1 McCarty, which is still flowing around 250 bbls. a day, and Amerada Petroleum Corp., Dixie Oil Co. and others' No. 1 in Section 30-25-7w, offsetting the Barnsdall Oil Co.'s McCarty well. Amerada Petroleum Corp and Dixie Oil Co. have completed No. 1 McCarty, in Section 22-25-17w, for 9,000,000 feet of gas after plugging back. Water was found at 4,647-90 feet, and the gas at 4,452-92 feet.

Showing in Douglass District

A showing of oil was found in the Agate Oil & Gas Co.'s test near Douglass in Section 20-29-4, Butler County. The oil was found in the Lansing formation at 2,220 feet. The operators are expecting to find production in the Bartlesville sand at 2,700 feet. The test was drilling at 2,400 feet on the last report. It is located on the south edge of Douglass and may result in a town lot drilling campaign if commercial production is found. The test has been shut down while the operators have been clearing titles. The Shell Petroleum Corp. has core-drilled the area and has considerable acreage around the test, with the Prairie Oil & Gas Co. and Slick, Pryor & Lockhart also holding close-in and offset acreage.

Reno's Latest Wildcat

The new wildcat completion of Tatlock, Shell Petroleum Corp. and others, known as No. 1 Tonn, in Section 17-25-4w, in eastern Reno County, is being pumped and made 130 bbls. in 12 hours, cutting 3 per cent. The well is estimated at 200 bbls. a day and is producing from a sandy horizon at 3,606-11 feet. Since the oil was first discovered about three weeks ago the well has pumped and swabbed about 2,500 bbls. It is estimated the slush pit contains about 1,500 bbls. while 1,000 bbls. is in the tanks. On the gauge of June 28, the well pumped 305 bbls. of oil and 25 bbls. of water.

Bartlesville Sand in Cowley

A new Bartlesville sand well was found in Cowley County during the week, 2 miles northwest of Burden. The new well was drilled by the Shell Petroleum Corp. and Lewis Production Co., and is No. 1 Headley, SE cor., Section 19-31-6, Cowley County. It is estimated to be a 150-bbl. well from the Bartlesville sand at 2,864-2,918 feet, at the total depth of 2,923 feet. The well swabbed and flowed 86 bbls. the first four hours, after being shot with 80 quarts. It is believed it opens a new pool for which operators have been searching in that area for several years. Rigs for offsets are being moved in by T. C. Johnson and Slick, Pryor & Lockhart on the east; Lewis Production Co. and T. C. Johnson, on the south; Dan Patton and Slick, Pryor & Lockhart on the southwest. A mile to the south in Section 31-31-6, Slick, Pryor & Lockhart drilled a small well about four years ago, which was followed by several others, none of which were successful, until the recent well of the Shell Petroleum Corp. and Lewis Production Co.

Slick, Pryor & Lockhart have announced a location for a wildcat test in Ellsworth County. It is located in the NW cor., Section 25-17-10w, in the southwestern part of the county. The test is about 15 miles north of the Schurr Pool in Rice County.

Deepening Increases Production

The Producers & Refiners Corp.'s No. 1 Thompson, SE cor. NW, Section 21-20-10w, Rice County, was drilled deeper from its old total depth of 3,331 feet, to 3,343 feet. Deeper drilling increased its production between 300 and 400 bbls. a day. It was rated as a 600-bbl. well before drilling deeper and after deepening it was swabbing 40 bbls. an hour. It was one of the first wells completed in the Schurr Pool, and owing to the curtailment of production has delayed drilling to the same total depth of the offsets.

Chautauqua-Elk Still Attractive

Elk and Chautauqua Counties are getting new tests. In the Moline district in Elk County important development is under way. The Prairie Oil & Gas Co. is starting a wildcat, No. 1 Cunningham, C NW NW Section 17-32-11, Chautauqua County, southeast of Moline. The test was located after an intensive geological survey of the area had been made.

Croft & Frazier are starting a wildcat test for No. 1 Key, SE cor. NE, Section 26-31-10, Elk County, midway between the Webb and the Oliver Pools. The test will be drilled to the Bartlesville sand and completed at about 1,750 feet, if the showing warrants. Prairie Oil & Gas Co. is deepening its No. 1 Williams, SW cor. NW, Section 36-30-9, Elk County, from the Mississippi lime to the Silicious lime and is nearing the pay horizon.

The Churchill Pool north of Oxford in eastern Sumner County, has two new operations. Mann and others' No. 1, NE cor. SE SE, Section 25-31-2, was spudding. The lease was formerly operated by the Wentz Oil Corp. and had three producing wells, which were abandoned when the production declined. The other test, W. H. Swartz' No. 1 Boyer, NW cor. SE, Section 36-31-2, was rigging up. It is located on an island in the Arkansas River on the southeast edge of the pool.

The Texas Company and Skelly Oil Co.'s No. 1 Shutts, in Section 5-12-17w, Ellis County, swabbed 168 bbls. of oil the first 24 hours from the pay horizon at a total depth of 3,628 feet. The well is an offset to the Phillips Petroleum Co.'s No. 1 Horn, in the same section which had an initial production of 585 bbls. in 18 hours.

The daily average production of the Valley Center Pool in Sedgwick County, for the week ending June 28 was 16,000 bbls. a day from 114 wells. The latest well completed in the pool was Wentz Oil Corp.'s No. 1-A Bright, a twin to No. 1 in Section 1-26-1w, a Simpson sand producer. No. 1-A Bright is in the Kansas City lime at 2,574-83 feet. It made 90 bbls. the first four hours.

Butler County

Scanlon and others made location for No. 1 Walter, SW cor. NW NW, Section 2-25-6. Elam and others' No. 1 Hopkins, SE cor. SW SE, Section 26-23-4, has been abandoned at 2,885 feet.

Chase County

Empire Oil & Refining Co. and Skelly Oil Co. and others made location for No. 1 Crosby, SE cor., Section 23-22-9.

Cowley County

Trees Oil Co.'s No. 3 Estes, C NE NW, Section 12-32-6, is spudding.

Elk County

Aladdin Petroleum Co. has the rig up for No. 1 Dunkenberger, SW cor. SE NW, Section 34-29-10. Exchange Drilling Co.'s No. 1 Rettig, NW cor. SW, Section 28-31-10, has been abandoned at 2,154 feet.

Greenwood County

Staats and others' No. 1 Swan, NE cor. NW, Section 3-25-12, is a machine moving in. Mid-Continent Petroleum

(Continued on Page 114)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

BARBER COUNTY

Company, farm and location—	Remarks:
Barbara Oil Co.'s No. 1 Hamblin, SW NW Sec. 24-33-13w	Drlg. 3,815 ft.
Skelly Oil Co.'s No. 1 Temple Ranch, SW NE Sec. 13-34-15w	Drlg. 5,606 ft.
Phillips Pet. Co.'s No. 1 Powell, SE cor. SE Sec. 11-32-10w	Drlg. 4,146 ft.

BARTON COUNTY

Slick and Prairie's No. 1 Rude, SW cor., Sec. 11-16-13w	Rig.

BUTLER COUNTY

Farrell et al's No. 1 Sutton, NW cor. Sec. 18-28-7	Rig on ground.
Aladdin Pet. Co.'s No. 1 Metzger, NW SE Sec. 23-28-3	Drlg. 1,700 ft.
Gypsy Oil Co.'s No. 1 Osborne, NW SE Sec. 22-26-3	Spudding.
Elam et al's No. 1 Hopkins, SE SW SE Sec. 26-23-4	Abandoned 2,885 ft.
Joe Liggett's No. 1 Guanther, C SE NE NW Sec. 29-26-7	Shut down 50 ft.

CHASE COUNTY

Steinbuckel et al's No. 1 Stephenson, NE SW Sec. 4-20-6	Shut down 2,185 ft.

CHAUTAUQUA COUNTY

Valentine Oil Co.'s No. 1 Patterson, NW SE SW Sec. 2-33-9	Total depth 1,840 ft.; abandoned 1,645-1,715 ft.; water.

CLARK COUNTY

Watchorn's No. 2 Morrison, NW NE Sec. 20-32-21w	Shut down 6,212 ft.

CLAY COUNTY

Crisler et al's No. 1 Tivier, SW cor. Sec. 19-8-3	Shut down 50 ft.

COFFEY COUNTY

Kimsay's No. 1 Baker, SE cor. Sec. 24-22-13	Abandoned 350 ft.
Ritchey et al's No. 1 Rossenmacher, C SE Sec. 36-22-13	Drlg. 1,647 ft.
Roberts et al's No. 1 Hay, SW SE NW Sec. 32-22-15	Rig.

COWLEY COUNTY

Tom Fine's No. 1 Boyd, NW NE Sec. 32-32-4	Shut down 1,160 ft.
Roth & Faurot's No. 1 Adams, C SW NE NE Sec. 19-32-8	Show oil 2,120-44 ft.; T. D. 2,147 ft.; fishing.

DICKINSON COUNTY

Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Shut down 1,410 ft.
Emery-Curtis & Bryan's No. 1 Hevner, NW SE Sec. 31-13-3	Total depth 3,065 ft.; abandoned.
Cross' No. 1 Sanden, NE cor. Sec. 12-15-2	Rig.
Hiatt & Durham's No. 1 Wendt, NW cor. Sec. 17-16-2	Shut down 50 ft.
Kruger et al's No. 1 Dicke, C NW NE NE Sec. 17-13-4	Shut down 2,935-43 ft.; water
E. N. Morgan's No. 1 Whithair, NW SE Sec. 9-12-1	Drlg. 2,140 ft.

DOUGLAS COUNTY

Steinbuckel's No. 1 Unknown, SW NE NW Sec. 34-14-21	Shut down 1,100 ft.
Jenkins & Scott's No. 1 Haden, SE NW Sec. 10-12-17	Shut down 1,800 ft.

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Louisiana Wildcats Blow in As Gassers

Bienville Parish Test Gauges More Than 41,000,000 Feet. Completions Stimulate Activity in Two States

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., June 30.—Three wildcats blowing in as big gassers and others equally interesting, if less spectacular, put pep in North Louisiana and Arkansas developments. The Arkansas - Louisiana Pipe Line Co.'s No. 2 Ashley, in Section 15-16-10, Bienville Parish, started things when it was completed at 2,604 feet gauging 41,500,000 feet of gas at 1,045 pounds from 4 feet of sand. No. 1 on this lease was completed by W. P. Wallace at 2,005 feet in January, 1929, gauging 8,000,000 feet of gas from 2,005 feet in 20 feet of broken formation. The present completion, half a mile southeast of the Wallace well, was dry at 2,036-48 feet and had 200 feet of salt water in the hole at 2,048 feet, presumably the level from which water that drowned out two or three gassers of large volume drilled in the immediate vicinity eight or nine years ago was coming. The location of these two wells, and the older ones referred to, is on the east side of Lake Bisteneau approximately 8 miles east of Elm Grove (Bossier) production.

The Bienville wildcat had not been closed in long before H. I. Morgan's No. 1 Kendrick, in Section 22-19-11, Bossier Parish, about a mile southwest of Bellevue production, blew in with an estimated 25,000,000 feet of dry gas from 7 feet of sand, total depth 1,786 feet. It is the sixth of a series of wells Morgan has drilled in exploring the flanks of the Bellevue Dome and the second success. The previous producer, No. 1 Wetherbee, in Section 21-19-11, made 6,000,000 feet of gas at 775 pounds from a total depth of 1,872 feet. No. 2 Wetherbee, in Section 28-19-11, was a deep test—3,200 feet—that tested dry at 1,900 feet.

The third wildcat was Triangle Drilling Co.'s No. 2 Caskey, in Section 6-19-5, Claiborne Parish, half a mile northeast of their No. 1 Kilpatrick, in Section 7-19-5, completed last February making 1,000,000 feet of gas with about 10 bbls. of oil from 4,355 feet, total depth 4,558 feet. The new well blew in Thursday while coring at 4,322 feet and most of the drill stem is still in the hole. They planned to come out with the rest of it Saturday, take a look at the 6 feet of core they have and then core 8 or 10 feet farther, set tubing and test Sunday. Location is about 20 miles southeast of Homer production.

Dry Holes in DeSoto Parish

Three more dry holes for the Standard Oil Co. in the Holly district of DeSoto Parish just about wrote the finish for that area, unless the company decides to go farther afield on its acreage acquired from R. O. Roy and try all over again, or finds production at deeper levels. One of the three, however, was such a deep test, comparatively speaking. This was No. 1 H. B. Sample, NE NE, Section 7-13-13, half a mile south of a line of gas wells in Section 6-13-13 and was abandoned as a dry hole at 3,347 feet; No. 1-B Farmer, C NW SW, Section 8-13-13, the farthest south location in the district and half a mile southwest of two dry holes in the same section abandoned last week, was abandoned at 2,803 feet; No. 2 Lee, NW SW, Section 33-14-13, a quarter mile north of No. 1, was abandoned at 2,841 feet. These two wells are the farthest east in the district. H. L. Hunt's wildcat in Section 5-14-13, 6 miles north of the discovery well, was abandoned at 3,004 feet. Arkansas Fuel Oil Co. made a test at 2,682-90 feet on No. 1 Lewis & Co., a Lincoln Parish wildcat in Section 26-20-4, 5 miles northeast of Simmsboro, and got 1,000 feet of salt water in the top of the Blossom, and is drilling at 3,150 feet in gummy shale.

Two wells were completed in the Carterville district of Bossier Parish and one in Sligo. Greenwood Production Co.'s No. 1 Bollinger, Section 36-23-12, Carterville, pumped 5 bbls. from 3,200 feet. The Texas Company got a big well in No. 9 Wilkinson, Section 36-23-12, which came in flowing 200 bbls. from 10 feet of sand, 2,141-51 feet, total depth 3,161 feet. Louisiana Gas & Fuel Co.'s No. 6 Thigpen & Herold, in Section 13-17-12, Sligo district, gauged 2,500,000 feet of gas at 1,025 pounds, total depth 3,486 feet. D. C. Richardson abandoned No. 1 Oden Account 3, in Section 18-19-14, Dixie district of Caddo Parish, as a dry hole.

A. C. Glassell's wildcat in Concordia Parish, No. 1 Pittsfield, in Section 41-8-10, is still shut in while he is negotiating with three or four interests for a trade. The well blew in a week or so ago with an estimated 10,000,000 feet of gas with considerable water at 1,453 feet. The water has been shut off and the bottom cemented; meanwhile, Palmer Corp. is reported to have bought the well and 80,000 acres of the 100,000-acre block around it for $3 per acre plus 10 cents per bbl. and half a cent per 1,000 feet of all oil and gas production and fulfillment of a drilling obligation calling for two more wells. Palmer Corp. is now a unit or subsidiary of the new United Gas Co. The Arkansas Natural Gas Corp. has 5,000 acres of Glassell's original block.

Louisiana Gas & Fuel Co., another unit of this merger, has taken 25,000 acres of a total of 50,000 acres taken by Matthews & Sipe in Catahoula Parish centering around Nick Barbare and others' No. 1 McGraw in Section 30-10-9. On the remainder of their block Matthews & Sipe are reported preparing for three shallow tests of the Jackson-Cockfield juncture, the first to be near, or offset an old well said to have had considerable of an oil show at less than 100 feet when drilled several years ago. Also, the Louisiana Gas & Fuel Co. is said to be building two others blocks in the same general territory.

Another trade in the making is the sale of Jordan Drilling Co.'s acreage and production in Richland and Monroe gas fields. The company has 15 or 20 producing wells and several hundreds acres of leases in proven territory in both districts, for which T. M. Pfeiffer, a broker representing New York interests, is reported to have taken an option at $1,000,000 cash.

Phillips Petroleum Co. is sending a crew of geologists into central west Louisiana for a general check-up with the idea of taking all blocks offered if structures found and defined are at all favorable. The proposed survey will cover the Fleming-Catahoula contact beginning at a point approximately 20 miles south of Leesville in Vernon Parish eastward to a point approximately 20 miles south of Alexandria in Rapides Parish, a distance of about 50 miles. Humble Oil & Refining Co. already has three geologists in this general territory.

Monroe Area

Monroe was barren of completions during the week and Richland had only two, Industrial Gas Co.'s No. 1 Ellege in the southwest corner of proven territory, Section 32-16-6, gauging 25,838,000 feet at 820 pounds, total depth 2,450 feet, and Richland Producing Co.'s No. 1 T. S. McCoy, Section 3-16-6, in the northeast corner of the field, testing 11,715,000 feet of gas at 570 pounds, total depth 2,460 feet. More interesting than the completions was United Carbon Co.'s No. 1 Mitchell, Section 20-17-6, the farthest north well in the field, finding the Monroe gas rock at 2,340 feet and taking 14 feet of it. Arrangements are under way for a test at 2,345 feet.

Loring Oil Co. was drilling in No. 5 Bowman-Hicks, Section 34-8-12, Zwolle district, to test 10 feet of porous lime that showed a heavily saturated core and considerable gas several days ago at 3,915-25 feet. Should it result in a producer, it will be the first deep producer in Zwolle and is calculated to start a second drilling campaign in which there will be much deepening of wells abandoned between 2,500 and 2,600 feet when they failed to hit a crack in the chalk from which present production is coming. No. 1 Peavy-Wilson, wildcat in Section 21-6-13, about 6 miles south of Blue Lake production, got the top of the Blossom at 3,535 feet and cemented 3,618 feet of 10-inch for second string, one of the longest strings of this size pipe in this part of the country. Pelican Natural Gas Co.'s No. 2 Louisiana Long Leaf Lumber Co., a wildcat in Section 20-7-12, 4 or 5 miles south of Zwolle production, was dry at 2,833 feet after 100,000 feet of gas at 2,707 feet and is arranging for a third test at 2,935 feet; No. 2 Sabine Lumber Co., in Section 12-7-12, was dry at 2,358 feet and is drilling at 2,360 feet. Central Petroleum Co. abandoned No. 1 McCormick, a townsite well in Section 31-8-12, at 2,595 feet, and Gerke and others abandoned the derrick they had up for No. 1 Okerson in the same section. L Nagle's No. 1 Corley, in the same section, pumped 35 bbls. initial from 2,461 feet.

Calatex Oil & Gas Co.'s No. 2 Caldwell, in the John Womack Survey, Panola County, Texas, was a 1,000,000-foot gas well at 2,924 feet. Arkansas-Louisiana Pipe Line Co. is drilling at 2,825 feet on their scheduled deep test, No. 2-A Brumble in the same survey. Natural Gas Producing Co.'s No. 8 Roquemore, in the B. C. Jordan Survey, completed two or three weeks ago making 8,000,000 feet of gas at 3,645 feet, has developed into a fine gasoline well, extraction averaging better than 2 gallons per 1,000 feet. McDonald Brothers have made location for No. 1 B. D. Tillery on a 127-acre tract in the northwest corner, J. H. Murphy Survey of Camp County, and W. D. Chew has

(Continued on Page 114)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

NORTH LOUISIANA

AVOYELLES PARISH

Company, farm and location— Remarks—

R. E. Tippett's No. 1 Chateline, NE NE, Sec. 34-1n-3e.. Cored S.W; sand 3,140-47 ft; drlg. S.W. sand 3,400 ft.

BIENVILLE PARISH

Ark.-La. P. L. Co.'s No. 3 Ashley, 700 ft. N, 660 ft. W, SE cor., Sec. 15-16-10.... Cmtd. 7¼-in. 1,945 ft; D.S. test 1,968-71 ft; estimated 2,225,000 ft. gas.

W. A. Nichols et al's No. 1 McDermott, 660 ft. S, 660 ft. W, NE cor. NE NE, Sec. 28-18-6.... Tested dry 2,050 ft; drlg. sandy shale 2,270 ft.

BOSSIER PARISH

Andrews & Davelin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14.... Drlg. 925 ft.

La. G. & F. Co.'s No. 1 Crystal Oil Ref. Co., 66 ft. N, 1,320 ft. W, SE cor. SW SE, Sec. 7-21-11.... S.D; W.O. 4,410 ft.

H. I. Morgan's No. 1 Kendricks, 1,120 ft. N, 200 ft. E, SW cor., Sec. 22-19-11.... Cmtd. 6⅝-in. top sand 1,779 ft; D.S. test 1,786 ft; estimated 15,000,000 ft. gas.

CADDO PARISH

L. B. Mawk's No. 1 Swann, 440 ft. N, 200 ft. E, SW cor., Sec. 23-21-14.... S.D. for fuel; T.D. 700 ft.

R. W. Norton's No. 1 Hill, 630 ft. N, 1,260 ft. W, SE cor. NE, Sec. 33-23-16.... Coring anhydrite 5,285 ft.

CALDWELL PARISH

A. E. Hudson, agent's No. 1 C. M. Scott, 200 ft. N, 340 ft. E, SW cor. NE NW, Sec. 4-11-3e.... Drlg. shale and gumbo 1,451 ft.

CATAHOULA PARISH

National O. & G. Co.'s No. 1 Kirkland, 585 ft. E, 495 ft. N, SW cor., Sec. 35-9-1n.... Arranging cmt. 8-in. 2,000 ft.

(Continued on Page 132)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

BOSSIER PARISH—CARTERVILLE

Company, farm and location— Remarks—

Ark. Fuel Oil Co.'s No. 1 Bain, 330 ft. N, 330 ft. E, SW cor. NW SW, Sec. 31-23-11.... Cmtd. 6⅝-in. 3,148 ft; T.D. 3,170 ft.

Ark. Fuel Oil Co.'s No. 4-B Barnett, 330 ft. S, 330 ft. W, NE cor. NW NE, Sec. 36-23-12.... Began drlg. June 20; cmtd. 10-in. 280 ft; drlg. 910 ft.

Ark. Fuel Oil Co.'s (formerly Muslow Oil Co.'s No. 1 Floyd, 990 ft. S, 330 ft. W, C, Sec. 25-23-12.... W.O.S.R. 3,176 ft.

Ark. Fuel Oil Co.'s No. 4-A Kilgore, 100 ft. N, 1,330 ft. E, SW cor. SE SW, Sec. 30-23-11.... 190 ft. oil; W.O.S.R; T.D. 3,133 ft.

Ark. Fuel Oil Co.'s No. 7-B Kilgore, 330 ft. S, 990 ft. E, NW cor. NE NW, Sec. 31-23-11.... W.O.S.R. 3,164 ft.

Ark. Fuel Oil Co.'s No. 2 Mark Meyer, 330 ft. W, 250 ft. S, NE cor. SE, Sec. 36-23-12.... Cmtd. 6⅝-in. 3,150 ft; T.D. 3,163 ft.

Ark. Fuel Oil Co.'s No. 1 Ramsey, 557 ft. S, 330 ft. E, C, Sec. 31-23-11.... W.O.S.R. 3,171 ft.

Askew & Goodman's No. 1 Roberson, 330 ft. S, 332 ft. W, NE cor. SW SW, Sec. 25-23-11.... Show oil, gas and S.W; T.D. 3,167 ft; T.A. 3,280 ft.

Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 320 ft. W, NW cor. Lot 17, in Lot 16, Sec. 31-23-11.... Full oil; W.O.S.R; 15 ft. broken sand; T.D. 3,217 ft.

Eylers O. & G. Co.'s No. 1 Wise, 330 ft. S, 330 ft. W, NE cor., Sec. 35-23-11.... 350 ft. oil; W.O.S.R; T.D. 3,203 ft.

Greenwood Prod. Co.'s No. 2 Bollinger, 990 ft. W, 330 ft. S, NE cor. NE SE, Sec. 36-23-12.... Drlg. 2,400 ft.

Gulf Ref. Co.'s No. 1 Alluma, 990 ft. N, 330 ft. W, SE cor., Sec. 36-23-12.... Drlg. lime 2,245 ft.

(Continued on Page 104)

Gas Wells Feature in Pettus Field

Wild Well Blows Out in Bee County Area and Has to Be Abandoned; 20,000,000-Foot Dry Gas Well Where Oil Had Been Expected

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., June 30.—With a wild gasser in the Pettus Field in Bee County, 2 miles from production, and a dry gasser in the same field where it should have been an oil well, along with other happenings, it has been a busy week in Southwest Texas. Union Producing Co.'s No. 11 Ray, which came in at 3,815 feet and ran wild for a few days, is located a mile south of the same company's No. 3 Ray and shown in the map on Page 77 of The Oil and Gas Journal of June 19. It is 2 miles east and a little south of the group of producers which are making oil at around 3,900 feet. No. 3 Ray is a gas well making two heads of oil daily at about 4,000 feet. No. 11 Ray late last week was brought under control. It blew in without casing in the hole and caved considerably and hence will be abandoned and a new hole started near it.

In the northeast corner of the townsite of Pettus last week Glasscock Brothers at 3,814 feet got a 20,000,000-foot dry gas well. Varying depths at which gas and oil production are being found in the Pettus area is giving rise to the idea that the sands are lenticular in that part of the country. One of the discouraging features of the field the past week was the Trinity Drillers' No. 1 Roberts just west of the town limits of Pettus. At 3,920 feet it came in salt water. It is being plugged and abandoned. This well and Glasscock's No. 1 Townsite, which came in a dry gas well in a location where the owners expected to get oil, are located between the group of producers on the east and the Cosden Oil Co.'s producer on the west, which was supposed when it was drilled to prove up all the intervening territory, for oil.

Late last week the Grayburg Oil Co. had set packer on tubing in its No. 1 Kimball, which is 7 miles southwest of production in the field. The well was being swabbed back in.

The Houston Oil Co.'s No. 1 Beasley, in the southeast corner of the townsite of Pettus, about 1,700 feet south of the Glasscock Brothers' No. 1 Townsite, had set casing at 3,896 feet and in a few days will be brought in. On drill stem test it showed for an oil well.

Zapata County

Zapata County came to the front again this week with eight completions in the Escobas Pool in addition to three others elsewhere in the Laredo district and 10 new locations were made in the Escobas Pool, which was extended about 3 miles to the southwest by the completion of Arnold & Ahler's No. 1 Garza, estimated at 100 bbls. daily in sand at 1,364 feet. It is 3 miles south and 1 mile west of the discovery oil well of the field. The completions added 850 bbls. daily to the production of the district.

Most of the wells in the Escobas Pool nestle pretty well together and the completion of the Arnold & Ahler's No. 1 Garza is the first real good extension the field has had. It is 450 feet from the northeast and northwest lines of Block 1, subdivision of the Zorro ranch in the Comitas Survey, which puts it approximately 12,500 feet from the northwest and 9,500 feet from the northeast lines of the Comitas grant.

The biggest well of that field to be completed this week is the Nordan & Morris' No. A-2 Trevino, which came in flowing at the rate of 225 bbls. per day on a three-eighths inch choke.

Cole Pool

In the gas district north of the Cole oil pool in Webb County, Magnolia Petroleum Co. completed its No. 2 A. Benavides for 100 bbls. daily. It is in the northeast corner of Survey 660, being 150 feet from each line and is a west offset to W. F. French's No. 1 Benavides.

In Survey 144 in Duval County, Humble completed its No. 46 Kohler for 25,000,000 feet of gas at 1,750 feet. The No. 45 Kohler, 600 feet north of it, is an oil well at the same depth.

Joe Bruner Field

In regard to the report that the Cranfill-Reynolds Pipe Line Co. in the Joe Bruner Field had given notice it would purchase no more crude from that field, the company says it has not given notice to anyone that it has discontinued purchasing more crude in the Bruner Field and it is still purchasing crude from practically all the independent producers in the field.

Carolina-Texas Pool

One other completion of the week in the Laredo district is worthy of notice. E. D. Claggett's No. 1 Webster, in Survey 684, offsetting a producer of Trapshooter Reilly and located 150 feet from the south line and 990 feet from the west line of the survey. Depth is 3,056 feet, the same as the Trapshooter Reilly well, and it is estimated at 100 bbls.

A little new attention was drawn to Starr County this week when Kush's No. 1 Kelsey, 7 miles north of Rio Grande City, came in a small gas well at 210 feet.

Agua Dulce Deep Tests

With the arrival of specifications, the big Emsco California type rig being assembled on the derrick floor of the Houston Oil Co.'s No. 1 Brooks, deep test in the southwestern part of the Agua Dulce Field, is about ready to run. This rig will be able to carry this hole on down to 7,000 feet if necessary. More than 20 cores have been taken in this test down to the present depth of approximately 4,000 feet.

The South Texas Producing Co. which has been reaming down its No. 1 Daudermann, located 450 feet from the north and east lines of Block 13, Section 32, of the Benton Pasture Subdivision, during the past week, will carry this hole to a depth of 4,500 feet in an attempt to develop oil. This hole was temporarily abandoned a few months ago at 2,360 feet after the test failed to make a gas well from either of the present producing gas sands in this field.

Saxet Gas Field

Saxet Oil Co.'s No. 1 Donigan deep test pulled a core at 3,286-3,306 feet and sacked it late Tuesday. The hole was reamed down two joints and has just been rotating and circulating. Since this test is thought to be running some 30 feet high on a comparison of the 2,300-foot gas sands found on the Dunn tract and the oil showing which was supposed to have been had in Dunn's No. 5 a half mile to the north at 3,360-80 feet or possibly higher, it has served to create a keen interest in the cores now being taken from this hole. Within the next week the possibilities of this sand or any other sand which might compare with the sand found somewhere between 3,300 and 3,400 feet in Dunn's No. 5, which made an oil showing last fall, should be exploited in the test on the Donigan property.

While the 2,300-foot gas sand which is producing on the Dunn lands was picked up in the Donigan test and found to be running some 30 feet high as compared with the Dunn wells, and showed a thickness of between 40 and 50 feet, the deeper gas sands from which the Saxet's Walton and Weil wells are producing gas were not encountered in the Donigan test. The same is true of the gas sand from which F. P. Zoch's No. 1 Baldwin and others produced gas to the south and across the Robstown from the Donigan lands.

The Saxet Gas Co.'s No. 6 Dunn, 600 feet south of No. 5 Dunn, is not making as fast time as the test on the Donigan tract and is now drilling below 2,000 feet.

The R. A. Thompson, trustee's No. 1 Lawrence-Harrell test, a half mile west of the Donigan test, has resumed drilling after drilling surface casing plug set at 410 feet.

Lucas Gas Field

In the Lucas Gas Field in southeastern Live Oak County, the Houston Oil Co. is nearing 5,000 feet in its deep oil test on the Ross Boothe property in the M. B. Kilvin Survey, drilling now at 4,875 feet in hard sand and shale.

Southwest of the Lucas Gas Field the Dougherty and others' No. 1 Dougherty in the M. Boren Survey has reached a depth of 3,910 feet without finding commercial oil or gas production although a number of sands with showings have been cored and tested.

Darst Creek Field

Trinity Drillers topped the Austin at 2,288 feet in its No. 1 Goldman in the Darst Creek Field with an elevation of 550 feet. In the same district Penn Oil Co. in the river bed well southwest from production in the field cored the top of the Austin at 2,274 feet with an elevation of 380 feet.

Medina County

In Medina County, Pan-American Development Co. at 1,157 feet bailed from the bottom its No. 1 Hardt in Survey 539 reported last week as showing oil. The bailing showed a little oil but hardly as much as had been anticipated. Testing was not completed as this was written. It is 10 miles south of Hondo and a few miles west of the Adams gas field. Nine miles south of Hondo and a few miles west of the Ina Field, Sunflower Oil Co., which got some oil in the Ina sand at 928 feet, is deepening by coring and at 948 feet was still coring oil-bearing sand and determined to keep going until they cored through the sand. Oil is 20 gravity from this hole which is about the same as the Ina oil. This oil is bringing $1.20 a barrel at the Golden West refinery located in the Ina Field.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location—	Remarks:
Frontier Oil Co.'s No. 1 Boynton, 1,000 ft. from S line, 3,700 ft. from E line of N. Flores Sur., 3 miles SW from Somerset Field	T. D. 2,100 ft.; drlg. in sandy shale.
Nute, Walder & Derden's No. 1 J. B. Young, 750 ft. W line, 370 ft. E line of 107-ac. tract in the Wm. Moore Sur.	Location.

BASTROP COUNTY

Judge Batts and others' No. 1 Alexander, 1,670 ft. N of S line, 528 ft. E of W line, Blk. 3 in the W. M. Eastland Sur., 3½ miles NE from Red Rock	T. D. 2,550 ft.; shut down in shale.
Pacific Oil & Gas Co.'s No. 1 J. Spooner, 300 ft. from N line, 400 ft. from W line in the L. Lavenuz Sur., 4½ miles E from Cedar Creek	T. D. 2,100 ft.; drlg. in chalk.
Pacific Oil & Gas Co.'s No. 2 Spooner, 240 ft. from W line, 4,950 ft. from S line 450-ac. tract in the L. Levering Sur., 5 miles E from Cedar Creek	T. D. 650 ft.; shut down.
Majestic Pet. Co.'s No. 1 J. M. Breeding, 160 ft. from N line, 1,020 ft. from W line of 200-ac. tract, 940 varas from W line, 1,225 varas from S line of M. Andrews Sur., 13 miles W from Smithville	Drlg. 50 ft.

BEE COUNTY

Jimmy Haynes et al's No. 1 Beck, one-half mile N from Normanna	T. D. 1,500 ft.; drlg.
Long & Mimms' No. 1 Billingsley, 155 ft. to S and W lines of Billingsley 50 ac. out of 150-ac. tract in the J. Pointevent Sur.	Location.
Houston Oil Co.'s No. 1 J. R. Beasley, C of Blk. 36	T. D. 3,903 ft.; cored oil sand 3,896-3,903 ft.; set csg.; W.O.C.
Osage Oil Co.'s No. 1 Mouldin, 155 ft. to N line, 155 ft. E line of east 50 ac. of 200-ac. tract in J. Pointevent Sur.	Rig up.
Osage Oil Co.'s No. 2 Maudlin, 155 ft. N line, 505 ft. to E line of tract in the J. Pointevent Sur.	Derrick.
Nichols Oil Corp.'s No. 4 Hicks, 550 ft. E of W line, 430 ft. S of N line of Blk. 20 in Jose Maria Urangua Sur.	T. D. 1,000 ft.; drlg. sandy shale.
Southern Crude Oil Co.'s No. 1 M. Dahl, 887 ft. from E line, 1,584 ft. N line of Mena Dahl 224-ac. tract in the George Pagen Sur.	T. D. 380 ft.; set surface csg.
Jean Patton's No. 1 Billingsley, 135 ft. to W line, 2,250 ft. to S line of Billingsley 30 ac. in the B. I. Hadley Sur.	Location.
The Texas Company's No. 2 J. R. Scott, 200 ft. N line, 150 ft. W line in J. M. Urangua Sur.	T. D. 450 ft. (core test).
Trinity Drillers' No. 1 Le Roy Roberts, adjoining townsite of Pettus	T. D. 3,920 ft.; tested salt water.

(Continued on Page 130)

SOUTHWEST TEXAS

Branyon	31
Bruner	29,571
Buchanan	244
Dale	348
Darst Creek	26,733
Kingsville	110
Larremore	35
Luling	9,880
Lytton Springs	823
Manford	400
McMullen	35
Medina County	22
Mirando	11,354
Pettus	5,057
Somerset	1,581
Yoast	470
Chapman	6,724
Total	93,418
Total week ending June 21	82,918
Increase	10,500

COMPLETIONS

Darst Creek—Guadalupe County

Humble Oil & Refining Co.'s No. 3 Yates Wilson, 52 feet from north line, 90 feet from west line of tract, in the J. C. Darst Survey; total depth 2,608 feet; completed; swabbed 700 bbls.

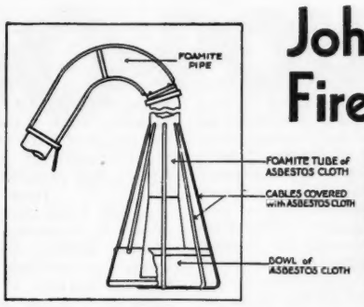
Humble Oil & Refining Co.'s No. 6 D. D. Baker, 369 feet from north line, 50 feet from east line of tract, in the J. C. Darst Survey; total depth 2,599 feet; completed; swabbed 600 bbls.

Magnolia Petroleum Co.'s No. 3 Rand Miller, 150 feet from northwest line, 450 feet from northeast line of 92-acre tract, 300 feet southwest of No. 2, in the J. B. Alexander Survey; total depth 2,634 feet; completed; flowing 150 bbls. per day.

Magnolia Petroleum Co.'s No. 3 J. M. Richburg, 300 feet northeast of No. 2 or 750 feet from southwest line, 200 feet from southeast line of lease, offset to

(Continued on Page 125)

Your Plant needs this PROTECTION!



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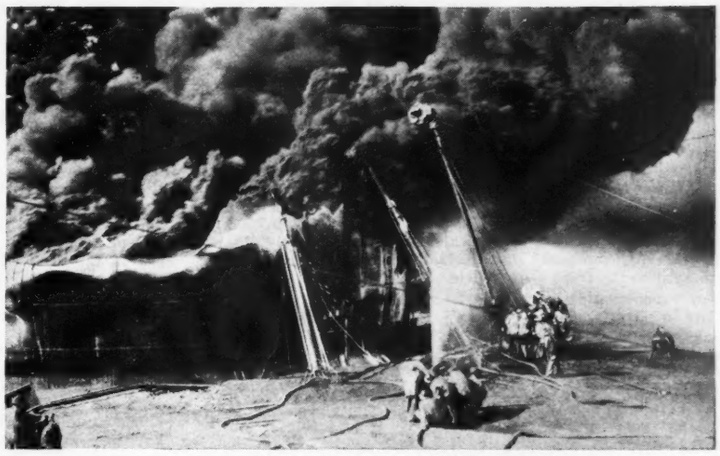
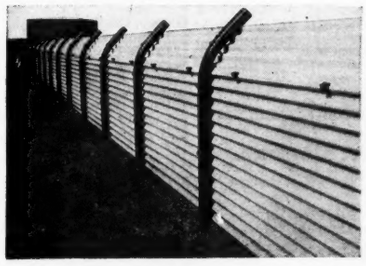
J-M Asbestos Tube and Bowl for portable foam fire extinguishers effectively overcome this difficulty. The excellent results obtained by its use have led to its adoption by representative oil interests everywhere.

The diagram shows its construction clearly. In extinguishing a fire the usual practice is to have on hand a foam tube long enough for the highest tank, and to cut off a length slightly less than the tank outage. This is secured to the end of the portable extinguisher and dropped by a release wire so that the bowl is suspended within a foot or two of the oil surface.



Raising portable Foamite Towers with J-M Tubes and Bowls



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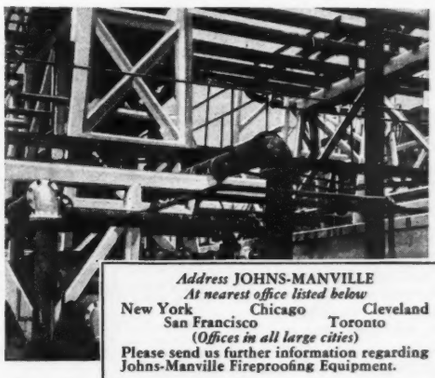

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OI-44-7

Possible Extension in Port Neches

Further Proving Up of Moss Bluff. Scattered Deep Producers at Refugio Make Extent Uncertain. Barbers Hill Wildcat Flowing by Heads

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., June 30.—The possibility of an important extension of production in the Port Neches Field of southwestern Orange County and the further proving up of Moss Bluff, Liberty County, as a producer of oil were indicated at the close of the week in showings encountered in semi-wildcats at each of these places. While these showings were among the chief developments in the coastal salt dome area, in the Refugio district of the lower coastal region a wild, high pressure gas well within the townsite was keeping things lively there and with a half dozen deep tests coming in, ready to come in, or drilling in or near the pay horizon that field continued to keep to the front.

At Port Neches, Gulf Production Co.'s No. 1 W. H. Starks late in the week had picked up a sandy shale showing oil with bottom of the hole at 4,389 feet. It has cemented casing to test. This test holds an important position in determining a trend of production at Port Neches. It is approximately 1,500 feet north of the group of four producers drilled by The Texas Company. These four producers, which were completed in succession, so far are the only wells, and being in a small radius around the intersection of the Polk, Stark and Kuhn tracts, confine production to a small area. These tests all found the pay close around 3,100 feet.

Testing the Trend

With these offset requirements taken care of, The Texas Company recently has made an effort to determine the trend of the field by two tests, Nos. 2 Stark and No. 2 Kuhn, north and south offsets, approximately 1,000 feet to the west of production. The former found a sand at 4,124-44 feet but tested salt water and now is going deeper. No. 2 Kuhn, the south offset test to No. 2 Stark, also has a sand at 4,016-26 feet, the first 5 feet showing oil and the second water. Thus, so far a westward extension has failed. Now the Gulf test will determine a possible trend northward. The Texas Company holds the acreage between this test and the four wells which comprise the field, the Gulf test being 50 feet north of The Texas Company's line. The only other test ever drilled in this area was a deep dry hole drilled by the Gulf about 1½ miles west of The Texas Company's field.

Moss Bluff Test

At Moss Bluff, Liberty County, Gulf Production Co.'s No. 1 McFaddin is in a sand and shale showing oil at 5,759-77 feet and has cemented 6⅝-inch casing at 5,750 feet to test. This is a north offset to Humble Oil & Refining Co.'s No. 6 Sterling, discovery well of the dome, which was completed several months ago. The Humble well, which was completed as an 800-bbl. producer, has been shut in since soon after completion in line with the company's conservation efforts. Except for the Gulf test, and a deep test now being drilled by the Shell Petroleum Corp. on another side of the dome, no other tests have been drilled at Moss Bluff since the Humble discovery well and hence the possibilities of the field have not been learned. The Humble and Gulf wells are on the extreme east side of the dome while Shell Petroleum Corp.'s test now drilling is on the south side on the Chambers County side. Moss Bluff is one of the oldest of geophysical domes on the coast and a dozen or more tests had been drilled unsuccessfully on and around the dome previous to Humble's discovery well. The latter followed the drilling of five other tests in a line from west to east in an attempt of the company to gradually move off the dome and find flanking sands. The discovery well is at a total depth of 5,666 feet, which is slightly higher than the Gulf well.

Refugio Well Runs Wild

Houston Oil Co.'s No. 1 Strauch, Block 20 of the townsite, Refugio Field, created considerable excitement the latter part of the week when it blew out while trying to run 7-inch casing to test a sand at a total depth of 5,468 feet. The pressure of the well is estimated at 2,000 pounds. At this writing the well is still running wild and it is expected the hole will be lost. This well is on the west edge of the string of 5,400-5,500-foot wells which have been completed along the east side of the old Refugio 3,700-foot field.

Morgan Oil Corp.'s No. 3 O'Connor, 1,500 feet east edge of the 5,400-5,500-foot line of production, added another "gasoline" well. With 12 feet of screen at 5,398 feet, the well came in as a 1,600-pound gas well spraying high gravity oil of around 70 degrees.

The extent of the deep sand production at Refugio is extremely uncertain. A solid strip of 5,400-5,500-foot production approximately 1,000 to 1,500 feet long and now over a mile long is being developed, moving gradually northeastward and southwestward, but scattered deep producers which previously have indicated the existence of deep production over a radius of several miles apparently have tapped only localized pools. Attempts to prove up production around these various scattered deep wells and to link them with the main producing area so far have failed at the cost of a number of "key" well failures.

Wildcat Abandoned

The past week Union Producing Co.'s No. 2 Shelton, a wildcat about midway between and in an almost direct line between the main field and the same company's No. 1 M. F. Lambert, 2 miles northeast of the field, was abandoned after failing to find either the pay horizon of the 5,400-5,500-foot field or that of the 5,900-foot Lambert well. Even the immediate area around the Lambert well has been marked with disappointments, although the possibilities of further production there remain to be determined by Houston Oil Co.'s No. 1 Rose Lambert, a direct west offset of the Union's No. 1 M. F. Lambert. Houston Oil Co.'s test at latest report was in lime and shale at 5,861 feet. The pay in the M. F. Lambert well was at a total depth of 5,884 feet. The M. F. Lambert well might be considered the only well so far in the so-called 5,900-foot sand which it found. No. 2 Lambert, 1,500 feet to the east, after going considerably deeper found the pay but swabbed only around 10 bbls. daily. Independent Oil & Gas Co.'s No. 1 M. F. Lambert, an east offset to Union's No. 2 Lambert, missed the horizon and has drilled to 6,375 feet where drill stem is stuck. Union abandoned its No. 3 M. F. Lambert, 1,500 feet south of No. 1, after failing to find the pay and T. P. Morgan's No. 1 St. Johns, south of Union's No. 3 Lambert, has gone to 6,517 feet unsuccessfully.

If Houston Oil Co. fails in its No. 1 Rose Lambert, west of the M. F. Lambert wildcat well, the only possible trend of production is to the north, so far undrilled.

Union Producing Co.'s No. 4 Mitchell, on the south end of the strip of 5,400-5,500-foot wells, has been shut down after going to 5,741 feet. This test seems to be too far east of the "shoestring." However, most of the wells completed in the southwestward trend of development of the shoestring have been comparatively small producers or failures.

Deep Tests

A half dozen deep tests were testing or due to be testing over the week-end. Mission Drilling Co.'s No. 1 O'Brien, which was swabbing at 5,471 feet, promised an extension of the 5,400-5,500-foot shoestring to the northward. Houston Oil Co.'s No. 1 City, Block 5, of the townsite, in sand at 5,427 feet, if successful, will be the fourth southwest test in the string.

In addition to the No. 2 O'Connor well, completed the past week spraying high gravity oil, Morgan Oil Corp. has three other tests on the same tract in the sand. This tract, which lies just east of the SE cor. of the townsite, and the four wells drilled, are in direct line of production and fill in a gap in the narrow strip of producers.

Daily Average Production

Daily average production of coastal fields for the week ended June 28 was:

GULF COAST PRODUCTION

SOUTHEAST TEXAS

Allen	27
Barbers Hill	19,899
Batson	1,175
Big Creek	4,254
Blue Ridge	1,702
Brenham	135
Bolling	1,090
Clay Creek	1,600
Damon Mound	710
DeWalt	12,004
Fannett	1,279
Goose Creek	4,690
Hankamer	2,957
High Island	1,123
Hull	9,150
Humble	15,134
Jasper County	20
Lost Lake	240
Markham	310
Nash	272
North Dayton	2,650
Orange	2,220
Orchard	3,051
Pierce Junction	10,925
Port Neches	1,497
Raccoon Bend	12,007
Refugio	36,676
Esperson (Sheeks)	1,963
Saratoga	1,091
Sour Lake	2,285
South Liberty	4,897
Spindletop	17,876
West Columbia	5,526
Total Southeast Texas	180,435
Week ending June 21	174,967
Increase	5,468

SOUTH LOUISIANA

Anse La Butte	32
Bayou Blue	50
Bayou Bouillon	175
Black Bayou	650
Edgerly	639
Jennings	2,641
Hackberry	2,873
Lake Barre	688
Lake Pelto	149
Lockport	3,011
Port Barre	3,315
Sorrento	169
Starks	496
Sulphur	3,600
Sweet Lake	105
Vinton	5,056
Welsh	147
White Castle	1,250
Total South Louisiana	25,046
Total week ending June 21	25,826
Decrease	780
Total Gulf Coast	205,481
Total week ending June 21	200,793
Increase	4,688

Below 8,100 Feet at Humble

The Humble Field the past week entered the ranks of those domes on which 8,000-foot tests have been drilled. Benedum & Trees' No. 1 Foley, on the ex-

(Continued on Page 114)

GULF COAST FIELDS AND WILDCATS

Week Ended June 28

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 10 Barrow, southwest.. Drlg. sandy shale 3,997 ft.
Mills Bennett Production Co.'s No. 3 E. W. Barber, north .... Drlg. salt 1,683 ft.
Mills Bennett Production Co.'s No. 3 Gulf-Higgins, southeast .... Drlg. sand 5,097 ft.
Mills Bennet Prod. Co.'s No. 1 Henry Fisher, southwest.. Derrick.
Mills Bennett Production Co.'s No. 2 Fisher, southeast.. Drlg. sandy shale 3,544 ft.
Mills Bennett Production Co.'s No. 2 Wilburn (workover) .... To pump 5,252 ft.
Humble Oil & Ref. Co.'s No. 6 fee, west .... Drlg. sandy shale 3,320 ft.
Humble Oil & Ref. Co.'s No. 7 Mayers fee, west .... Rig.
Humphreys Corp.'s No. 1 Fitzgerald, north .... Rig.
Humphreys Corp.'s No. 1-B Barber, north .... Drlg. hard lime 1,015 ft.
Humphreys Corp.'s No. 9-A Kirby, northwest .... Drlg. sandy shale 2,836 ft.
Humphreys Corp.'s No. 6-A Barber, northwest .... Rig.
Humphreys Corp.'s No. 2-C Kirby (workover) .... To pump 5,224 ft.
Humphreys Corp.'s No. 7-B Kirby, northeast .... Derrick.
Humphreys Corp.'s No. 1 Morgan .... Comp. flowing by heads 200 bbls. 6,404 ft.
Humphreys Corp.'s No. 2 Scott .... Trying to set screen 7,296 ft.
Humphreys Corp.'s No. 2-H Kirby (workover) .... Drlg. shale 5,464 ft.
Humphreys Corp.'s No. 3-H Kirby (workover) .... Swabbing 6,182 ft.
McAlbert Oil Co.'s No. 7 Woodward .... Drlg. gumbo and lime 1,595 ft.
Rio Bravo Oil Co.'s No. 1 fee, southwest .... Location.
Sinclair Oil & Gas Co.'s No. 3 McKinney fee .... Drlg. sandy shale 6,393 ft.
Sinclair Oil & Gas Co.'s No. 7 Wilburn, southeast .... Gumbo and lime 4,593 ft.; cmtd. csg.
Sun Oil Co.'s No. 7 Wilburn fee, southeast .... Drlg. shale and lime 1,718 ft.
Sun Oil Co.'s No. 8 Wilburn fee, southeast .... Drlg. gumbo 460 ft.
Sun Oil Co.'s No. 7 J. Wilburn .... Set screen 3,761 ft.; comp. flowing 1,500 bbls. 25 gravity.
Sun Oil Co.'s No. 8 J. Wilburn, southeast .... Drlg. rock 1,732 ft.
Sun Oil Co.'s No. 9 J. Wilburn, southeast .... Derrick.
Sun Oil Co.'s No. 5 Chambers, south .... Oil sand 4,662 ft.; cmtd. csg.
Sun Oil Co.'s No. 1 O. K. Winfree, west .... Drlg. hard sand 3,165 ft.
The Texas Company's No. 4 Wilburn, southeast .... Drlg. lime and shale 4,782 ft.
The Texas Company's No. 1 Williams, southwest .... Derrick
Yount Lee Oil Co.'s No. 14 Chambers, south .... Comp. flowing 660 bbls. 4,655 ft.
Yount Lee Oil Co.'s No. 4 Phillips, southeast .... Drlg. shale and lime 4,815 ft.
Yount Lee Oil Co.'s No. 7 Woodward, southeast .... To pump 5,246 ft.
Yount Lee Oil Co.'s No. 8 Woodward, southeast .... Rigging up.
Yount Lee Oil Co.'s No. 2 Zadie Fisher, southwest .... Drlg. shale and lime 4,423 ft.
Yount Lee Oil Co.'s No. 5 Richardson, southwest .... Drlg. sand and lime 4,281 ft.

RACCOON BEND—AUSTIN COUNTY

Humble & Valley's No. 5 Bellville .... Drlg. shale 227 ft.
Humble & Valley's No. 1 Brown .... Drlg. shale 3,345 ft.
Humble & Valley's No. 3 Buchanan .... Derrick.
Humble & Valley's No. 1-B Hardy (Waller County) .... Standing 3,751 ft.
Humble & Valley's No. 2-B Hardy .... Derrick.
Humble & Valley's No. 1-C Mitchell .... Temporarily abandoned 3,474 ft.
Humble & Valley's No. 7 Payne .... Derrick.
Humble & Valley's No. 8 Payne .... Derrick.

(Continued on Page 126)

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California Refined Market Is Weak

Condition Is Being Reflected on Crude Market. Gain in Production at Santa Fe Springs Brings Warning

L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., June 28.—Although the production situation in California is fairly well in hand, marketing conditions on the Pacific Coast are very unsettled. Gasoline prices showed a further substantial weakening during the past week resulting in reductions in Washington, Oregon and California. Developments during the past ten days indicate the possibility that the present gasoline war may not be as short lived as some anticipate, notwithstanding that some of the major companies do not approve of existing cutthroat competition which has reduced gasoline prices 5 cents per gallon within the past few weeks. On the basis of present quotations all marketers on the Pacific Coast must be going into the red although reports tend to indicate that the major companies are regaining some of the gallonage lost to independent refiners during the past few years. This should tend to reduce gasoline stocks in as much as the larger companies hold the greater part of present storage but at the same time this forced liquidation is taking place in the face of adverse conditions as far as the price structure is concerned. In order to permit the liquidation of present excess stocks of refined oils it will be necessary for independent refiners to restrict operations which inevitably occur if present low prices continue. Reports indicate that where retail prices are the same the consuming public is buying gasoline of the major companies in preference to bootleg motor fuel. Legitimate independent refiners claim to be maintaining gallonage but many admit that they are operating at a heavy loss. The seriousness of the situation is evidenced by the fact that two substantial independent refiners failed to declare the usual customary quarterly dividend during the past week.

Severe Competition

The severe competitive condition which has characterized the marketing situation on the Pacific Coast during the past several weeks has resulted in a rather unique situation because on the basis of present prices the refiner's margin of profit, if any, is considerably less than the 4-cent differential allowed resellers. In order to illustrate this point, it might not be amiss to break down the current price of gasoline in Los Angeles territory, which within the past week has been reduced to 14½ cents per gallon. This quotation includes the 4-cent differential allowed to resellers, a 3-cent gasoline tax and a hauling charge varying from one-half to perhaps 1 cent per gallon. It is quite evident that refiners must be losing considerable money in as much as the net return on the present price of gasoline is less than 7 cents per gallon. The margin between the net return of 7 cents per gallon and the manufacturing cost must be very small, especially in view of the fact that refiners claim to be losing money on gasoline exported at 6½ cents a gallon f.o.b. tankers. The present situation is particularly interesting in view of the fact that much of the gasoline in storage was accumulated at higher prices and must necessarily be adversely reflected in subsequent financial statements if liquidated under present conditions.

The present unsettled situation in marketing conditions must be especially disconcerting to refiners purchasing most of their crude oil requirements in the open market or under contract at the present posted price for crude oil. Well integrated units with substantial production of their own and buying not to exceed 50 per cent of crude oil requirements are in a much better position to weather these periodic disturbances although it has been evident from previous gasoline wars that any substantial reduction in gasoline prices is adversely reflected in subsequent quarterly reports. Developments during the past week indicate the possibility that the current gasoline war on the Pacific Coast will probably not be terminated as quickly and satisfactorily as has been done in previous situations in the past. At the same time it is not logical to assume that marketers will continue to operate indefinitely at a loss unless it is the present intention to carry the existing gasoline war to a final conclusion. The chief difficulty which will probably be encountered in any effort to effect a restoration of prices should be the inability to effect stabilization of prices for the products of independent refiners.

Bootleg Pumps

One cannot but be impressed by the fact that many resellers are taking undue advantage of refiners by forcing prices down on the false assumption that they will sell more gasoline and make more money if they break the price. Action should be taken by refiners if possible to prevent their resellers from installing a bootleg pump in competition with other pumps at the same station dispensing legitimate gasoline. In other words, the tendency should be toward stabilization on a 100 per cent basis or at least the maintenance of stabilized prices. This might be accomplished by allowing a 4-cent differential to 100 per cent stations and a 3-cent differential to resellers handling one or more different brands of gasoline. The practice of installing bootleg pumps in competition with standardized quality gasoline by independent service stations has proven a very disturbing element, and has retarded all efforts toward stabilization.

Crude oil production in California during the past week was up again due to an increase of several thousand barrels a day at Santa Fe Springs and minor increases in other fields due to the completion of new wells. The situation at Santa Fe Springs where production early in the week increased 6,000 bbls. per day, caused Umpire Grimm to warn operators that they must cut back production to their June quota as specified in contract agreements. On Monday field production at Santa Fe Springs aggregated 117,000 bbls. per day, subsequently declining to 116,000 bbls. on Tuesday and 115,000 bbls. on Wednesday. Part of the increase shown by Santa Fe Springs during the past week can be attributed to the fact that some operators who were under their allowance for the first half of the month were making up the shortage so that by the end of June their actual production would approximate the allowable specified by the umpire.

Crude Production Up

In issuing the warning to Santa Fe Springs operators, Umpire Grimm pointed out that the June allowable established by his office represented the maximum level permissible and that production must be kept under those figures. Pipe line companies were notified that under the curtailment program in effect they would be expected to refuse to take more than the allotted amount of oil specified for each operator under the June allowables. There is no questioning the fact that part of the increase registered by Santa Fe Springs during the past week can be attributed to operators who have consistently refused to become parties to the curtailment agreement. Several companies are producing from 300 to 500 bbls. per day in excess of their allowable. It goes without saying that operators producing in excess of their allowable production as fixed by Umpires Grimm and Anderson are jeopardizing the stability of the entire curtailment program. When the Standard Oil Co. restored the price for Santa Fe Springs crude it indicated that it would continue its policy of posting price schedules commensurate with the value of crude oil from time to time. Taken all in all, the crude oil curtailment program in California has been fairly satisfactory, although a substantial part of the reduction which has taken place in State production can be attributed to normal decline. If for any reason Santa Fe Springs operators jeopardize present curtailment work it is not at all improbable that the Standard may resort to disciplinary action by reducing the posted price of crude oil.

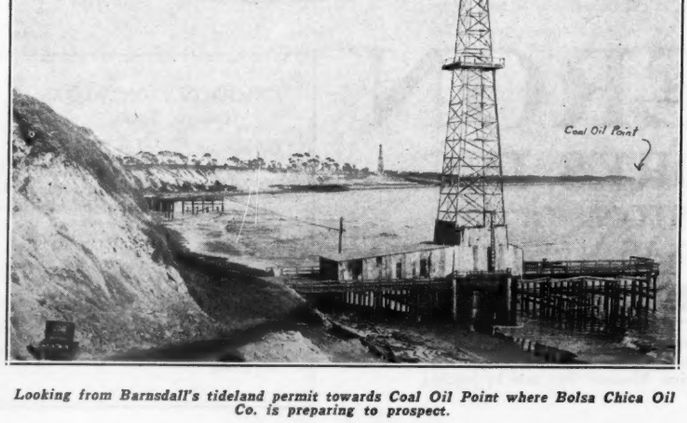
If it were not for the excess production at Santa Fe Springs and the possibility that the Playa Del Rey Field of Los Angeles Basin might result in favorable production, the outlook for the rest of this year could be considered promising as far as crude oil production is concerned. The depletion and partial exhaustion of lower zones at Santa Fe Springs and more effective enforcement of curtailment work has had a stabilizing effect on State production and this, together with fewer completions, has kept California's daily output around the 600,000-bbl. mark for the past several weeks. The production curve is very sensitive at the present time, however, and the completion of several substantial wells could easily result in a heavy increase. This has caused the Fact Finding Committee to recommend the inclusion of Playa Del Rey and Potrero in curtailment group No. 1, which comprises flush fields or areas where any considerable number of drilling wells are under way. Up until within the past few days it has been several weeks since any new production has been added but a check of development work indicates the completion of several additional potential producers within the next 30 days. Operators in this field have retarded drilling operations in an effort to stabilize production and keep the field's output within the allowable established by the Fact Finding Committee. The scarcity of completions at Elwood during the past month has resulted in a decline in the field's potential but this will

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	68,690	492,395
Fuel oil	.....	.....	.....	.....	71,950	49,950
Diesel and gas oil	.....	.....	64,005	9,143	1,919,152	913,200
Gasoline	648,089	92,584	366,148	52,307	8,416,609	9,846,218
Naphtha distillate	.....	.....	.....	.....	.....	81,750
Coastwise—						
Crude oil	235,040	33,577	229,531	32,790	7,245,235	11,043,412
Fuel oil	106,603	15,229	334,718	47,674	8,236,300	10,533,478
Diesel and gas oil	10,943	1,563	17,109	2,444	870,283	691,087
Gasoline	275,785	39,398	179,103	25,586	5,563,257	5,122,059
Kerosene	.....	.....	.....	.....	71,497	33,044
Exports—						
Crude oil	192,355	27,465	62,460	8,923	3,125,348	2,487,031
Fuel oil	403,561	57,652	319,477	45,640	8,937,825	8,955,226
Diesel and gas oil	153,712	21,959	93,967	13,424	2,322,994	1,416,985
Gasoline	311,152	44,450	254,938	36,420	7,423,264	5,089,125
Kerosene	10,260	1,466	115,193	16,456	1,845,431	1,400,255
Lubricants	.....	.....	.....	.....	10,082	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	83,280	.....
Gasoline	.....	.....	.....	.....	641,680	1,050,732
Lubricants	.....	.....	.....	.....	5,866	.....
Coastwise—						
Fuel oil	106,673	15,239	32,411	4,630	1,815,106	1,233,221
Diesel and gas oil	.....	.....	.....	.....	152,544	289,770
Gasoline	32,460	4,637	61,606	8,801	1,930,245	2,221,481
Kerosene	.....	.....	.....	.....	119,387	53,460
Exports—						
Crude oil	.....	.....	.....	.....	3,075	121,603
Fuel oil	.....	.....	.....	.....	481,000	256,039
Diesel and gas oil	.....	.....	.....	.....	231,990	155,474
Gasoline	.....	.....	306,513	43,788	1,946,896	2,937,649
Kerosene	.....	.....	.....	.....	369,514	382,417
Lubricants	.....	.....	.....	.....	18,672	21,899



Looking from Barnsdall's tideland permit towards Coal Oil Point where Bolsa Chica Oil Co. is preparing to prospect.

probably be back up again as a result of anticipated completions in the near future. The Maricopa Flats section of the Midway-Sunset Field of Kern County, which has been somewhat of a prominent factor in overproduction earlier in the year, is reaching the settled stage of production so that this area should not cause any further anxiety.

Coal Oil Point Wildcat

The Bolsa Chica Oil Co. has just spudded in a new wildcat, located at Coal Oil Point a few miles east of the prolific Elwood Field of Santa Barbara County, and the outcome of work will be watched with interest because of its geographical and structural location. The initation of work on this test climaxes an interesting period of exploration because the possible existence of an anticlinal structure at Coal Oil Point has not been generally recognized up until about a year or so ago. It remained for the Bolsa Chica Oil Co., however, to geologize this immediate area with the result that a promising structure was discovered. Geologists have viewed the exposed syncline on the Campbell acreage for a number of years without giving much thought to the possibility that the other limb of an anticline might be buried beneath the surface of the ocean just off shore. Others ventured the opinion that the probable anticline was located too far out from shore to justify exploration. The late Irving V. Augur, as president of the Bolsa Chica Oil Co. did not share this opinion and accordingly sent his assistants into the district with instructions to geologize the submarine structure off Coal Oil Point as thoroughly as possible. As a result of this submarine exploration work a normal anticline was worked out. Some evidence of faulting was noted but the unconformity was not nearly as great as the massive crushing effect visible at Elwood which has proven so prolific.

From a geological standpoint, therefore, the structure at Coal Oil Point offers as much promise as the Elwood structure did before the Barnsdall and Rio Grande started exploration work. For this reason and also because of the extremely heavy gas pressure encountered by the General Petroleum on the More Ranch to the east, work on the Bolsa Chica's wildcat will be watched with considerable interest. If commercial production is ultimately developed, this will be one of the few fields in California where the entire productive acreage will be under the control of one company. The Bolsa Chica has tied up every possible productive acre with the exception of two small tideland permits which are not open to entry because of an amendment to the State's leasing bill withdrawing California tidelands from further development.

In order to spud in its new wildcat at Coal Oil Point, the Bolsa Chica Oil Co. found it necessary to construct a 900-foot pier out into the open ocean at right angles from the shore line as this appeared to be the most favorable structural location available. At the end of its new pier the company constructed a drilling platform approximately 125'x75'. This drill head, incidentally, is considerably larger than the average width of town lots sustaining intensive development in major Southern California fields. As a matter of comparison, it might be mentioned in passing that many of the town lots at Playa Del Rey measure 40'x75'. In several instances at both Playa Del Rey and other town lot fields, operators have been obliged to lease additional space upon which to erect storage facilities and flow tanks.

The exploration work undertaken by the Bolsa Chica at Coal Oil Point is particularly interesting in view of wildcatting activities by the General Petroleum on the More Ranch and the Continental Oil Co. at Carpinteria. The General Petroleum opened up a new field at Capitan early this year and this field, located a few miles west of Elwood, is at the present time undergoing normal development. The General Petroleum has already finished four successful producers on the Urburu property in this field up to the present time, while the Shell has completed one producer on the Covarrubias property. These wells, finished around 1,400 feet and good for approximately 200 bbls. each per day, were shut in subsequent to completion in the interest of conservation. On the Urburu lease the General Petroleum recently spudded in No. 6 and has started rig construction for No. 7. The Shell recently spudded in a new well in this area on the Orella property.

On the More Ranch, east of Coal Oil Point the General Petroleum is at the present time drilling a deep test on tideland permit No. 138 and while this well is somewhat deeper than the first two wells on the More Ranch, which developed such a heavy gas pressure that drilling operations were suspended, it still has a chance for production. On tideland drilling permit No. 138, the General Petroleum cored the top of the Vaqueros at 4,635 feet. This indicates that the structure is plunging into the ocean as the Vaqueros was topped considerably higher in the first two wells located on the More Ranch. The Universal Consolidated, which is drilling a wildcat up along the coast at Point Conception west of Elwood and Capitan, encountered some shallow oil showings at 2,940 feet and while they were not sufficient to justify a production test, correlation work indicates that they may be comparable with similar showings encountered in the Standard's wildcat near Point Conception at 4,600 feet. Both of these wildcats at Point Conception have possibilities and should subsequently be watched as this exploration work may result in the discovery of a new field. The Con-

(Continued on Page 109)

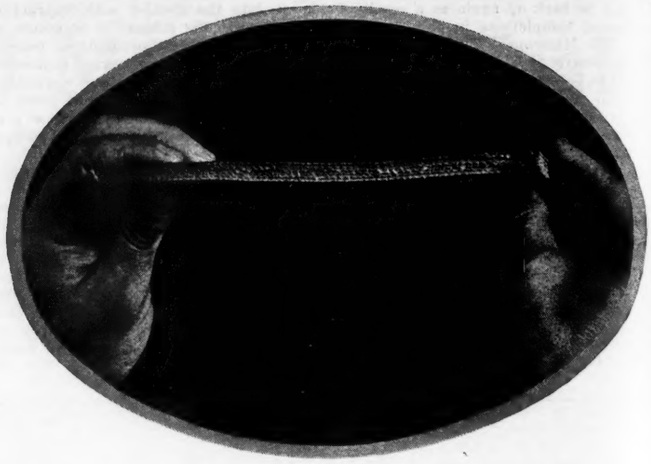
Bolsa Chica Oil Co.'s No. 1 Campbell, a wildcat at Coal Oil Point.

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Union, No. 1 Orchard Dale, Los Angeles Co.	10- 3-11	1,090	sd. sh. drilling
Clearwater Oil Co., No. 1 Bellflower, Los Angeles Co.	21- 3-12	5,590	br. sh. drilling
Burlingham Pet., No. 1 Compton, Los Angeles Co.	17- 3-13	3,770	sd. sh. drilling
Diller, W., No. 1 Watts, Los Angeles Co.	8- 3-17	6,900	abandoning
Crimson Pet., No. 1 Compton, Los Angeles Co.	22- 3-13	130	suspended
Francis, Don, No. 1 Compton, Los Angeles Co.	8- 3-13	450	sd. drilling
Ohio, No. 1 Moneta, Los Angeles Co.	35- 3-14	6,190	hd. sd. drilling
Guajome Oil Co., No. 1 El Nido, Los Angeles Co.	33- 3-14	mtl.	building rig
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,525	suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	1,216	sd. sh. drilling
McMahon & McDonald, No. 1 Watts, Los Angeles Co.	12- 3-14	4,000	hd. sd. drilling
Tri-State Oil Co., No. 1 Watts, Los Angeles Co.	12- 3-14	990	sd. sh. drilling
Republic Pet., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	4,548	abandoning
Rio Grande Oil Co., No. 1 Watson, Los Angeles Co.	17- 4-13	5,630	cleaning out
Shell, No. 1 Van Nuys, Los Angeles Co.	19- 2-15	3,330	sd. sh. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Rio Grande Pet., No. 1 Puente, Los Angeles Co.	14- 2-10	1,590	sd. sh. drilling
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	3,660	suspended
Bardeen Pet., No. 1 Puente, Los Angeles Co.	9- 2-10	1,140	hd. sd. drilling
Sherman, J. W., No. 1 Puente, Los Angeles Co.	33- 2- 8	850	suspended
Keck & Hall, No. 1 Puente, Los Angeles Co.	32- 2- 8	1,120	shut in
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	2,548	suspended
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	1,950	suspended
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,095	sd. sh. drilling
Consolidated Oil Co., No. 1 Newhall, Los Angeles Co.	8- 3-16	2,025	br. sh. drilling
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	1,268	suspended
Pioneer Pet., No. 1 Newhall, Los Angeles Co.	14- 3-16	2,838	suspended
Union, No. 1 Coyote, Sansinena, Los Angeles Co.	30- 2-10	3,671	redrilling
Tureco Oil Co., No. 1 Whittier, Los Angeles Co.	29- 2-11	4,750	sd. sh. drilling
Western Gulf, No. 1 Brea Canyon, Los Angeles Co.	28- 2- 9	5,690	hd. sd. drilling
Standard, No. 1 Bastanchury, Coyote, Orange Co.	21- 3-10	5,777	oil sand
Graham & Loftus, No. 1 Coyote, Orange Co.	18- 3- 9	4,590	sd. sh. drilling
Union Oil Co., No. 1 Richfield, Orange Co.	13- 3- 9	4,865	abandoning
Simmel, L. G., No. 1 Yorba Linda, Orange Co.	21- 3- 9	1,780	25 bbls. daily
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,910	suspended
Hall, H. L., No. 1 Newport, Orange Co.	20- 6-10	790	suspended
Standard, No. 1 Newport, Orange Co.	26- 6-10	1,014	br. sh. drilling
Fidelity Pet. Co., No. 1-A Murrietta, Riverside Co.	23- 7- 3	701	cleaning out
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,560	suspended
Imperial Valley Oil Co., Well No. 1, Imperial Co.	32-11-10	2,980	suspended
McGregor Synd., No. 1 Del Mar, San Diego Co.	17-14- 3	1,265	cleaning out
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,418	hd. sd. drilling
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	2,400	gr. sd. drilling
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,525	fishing
Girard & Grimes, No. 1 Corona, San Bernardino Co.	8- 2- 8	1,549	cleaning out

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	4,600	testing
Universal Consd., No. 1 Pt. Conception, Santa Barbara Co.	30- 5-34	3,120	hd. sd. drilling
Prairie Oil Co., No. 1 Lompoc, Santa Barbara Co.	15- 7-35	3,495	sd. sh. drilling
Vaqueros Oil Co., No. 1 Purisima, Santa Barbara Co.	5- 7-33	3,005	br. sh. drilling
Fields Gasoline Co., No. 1 Santa Maria, Santa Barbara Co.	8- 9-33	3,704	cleaning out
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	1,877	cleaning out
Deuel Pet. Co., No. 1 Santa Ynez, Santa Barbara Co.	9- 7-30	2,990	hd. sd. drilling
Carey, A., No. 1 Goleta, Santa Barbara Co.	1- 4-28	2,880	suspended
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	1,390	sd. sh. drilling
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,016	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	1,026	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,650	sd. sh. drilling
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	1,035	suspended
General Pet., No. 143 Goleta, Santa Barbara Co.	21- 4-28	1,040	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	1,002	sd. sh. drilling
Ring Oil Co., No. 1 Goleta, Santa Barbara Co.	16- 4-28	2,900	sd. sh. drilling
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	250	sd. sh. drilling
Caldwell Brown, No. 159 Goleta, Santa Barbara Co.	24- 4-29	1,040	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	1,035	suspended
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	4,531	cleaning out
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	3,690	hd. sd. drilling
Standard, No. 2 Casitas, Santa Barbara Co.	26- 4-25	rig	rigging up
Continental, Tideland permit No. 121, Santa Barbara Co.	33- 4-25	1,055	suspended
Continental, Tideland permit No. 122, Santa Barbara Co.	33- 4-25	1,020	suspended
Continental, Tideland permit No. 123, Santa Barbara Co.	33- 4-25	1,020	suspended
Continental, Tideland permit No. 124, Santa Barbara Co.	33- 4-25	5,732	abandoning
Continental, Tideland permit No. 124-A, Santa Barbara Co.	33- 4-25	418	suspended
Continental, Tideland permit No. 125, Santa Barbara Co.	33- 4-25	1,455	suspended
Continental, Tideland permit No. 126, Santa Barbara Co.	33- 4-25	1,034	suspended
Continental, Tideland permit No. 127, Santa Barbara Co.	33- 4-25	1,055	suspended
Continental, Tideland permit No. 128, Santa Barbara Co.	33- 4-25	1,054	suspended
Continental, Tideland permit No. 129, Santa Barbara Co.	33- 4-25	1,020	suspended
Exeter Oil, Tideland permit No. 163, Santa Barbara Co.	32- 4-25	76	suspended
Getty, George F., No. 120 Carpinteria, Santa Barbara Co.	32- 4-25	1,024	suspended
Getty, George F., No. 130 Carpinteria, Santa Barbara Co.	32- 4-25	1,029	suspended
Shell, No. 5 Oxnard, Ventura Co.	14- 2-20	1,700	sd. sh. drilling
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	8,529	redrilling
Prairie Oil & Gas Co., No. 1 Ventura, Ventura Co.	30- 3-22	5,925	redrilling
Bolsa Chica, No. 1-A Temescal, Ventura Co.	4- 4-18	2,360	br. sh. drilling
Fennell, E. A., No. 1 Lankershim, Ventura Co.	13- 4-19	1,791	sd. sh. drilling
General Pet., No. 1 Fillmore, Ventura Co.	6- 3-19	2,598	sd. sh. drilling
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	hd. sd. drilling
Camarillo Synd., No. 1 Camarillo, Ventura Co.	33- 2-20	455	hd. sd. drilling
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	rig	suspended
General Pet., No. 1 Buttonwillow, Kern Co.	6-28-23	2,706	suspended
Milham Explt'n, No. 9 Buttonwillow, Kern Co.	8-28-23	4,990	suspended
Nordon Oil Co., No. 1 Buttonwillow, Kern Co.	7-29-24	1,300	sd. sh. drilling
Shell, No. 1 Lerdo, Kern Co.	23-28-26	4,094	sd. sh. drilling
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	4,965	oil sand
Shell, No. 1 Edison, Kern Co.	33-29-29	5,175	hd. sd. drilling
Petroleum Securities, No. 1 Edison, Kern Co.	14-29-29	....	location
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	2,130	suspended
Continental, No. 1 Kern Gorge, Kern Co.	6-29-30	814	hd. sd. drilling
Sayre, F. M., No. 1 Edison, Kern Co.	5-30-29	4,220	cleaning out
Hancock Oil Co., No. 1 Jasmine, Kern Co.	23-25-27	2,660	sd. sh. drilling
Shell, No. 1 Semitropic, Kern Co.	17-27-23	2,860	sd. sh. drilling
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	505	hd. sd. drilling
Bardeen, H. A., No. 1 San Emidio, Kern Co.	18-10-23	1,093	br. sh. drilling
Bardeen, H. A., No. 2 San Emidio, Kern Co.	10-10-23	2,450	sd. sh. drilling
Stabler, W. W., No. 1 Commanche Pt., Kern Co.	4-11-18	1,550	sd. sh. drilling
Wrenn, J., No. 1 Antelope Plains, Kern Co.	32-25-17	430	cleaning out
Hannon, Tom, No. 1 Devils Den, Kern Co.	25-25-18	2,480	sd. sh. drilling
Richfield, No. 1 Kreyenhagen, Fresno Co.	33-22-16	1,177	sd. sh. drilling
Petroleum Securities, No. 2 Huron, Fresno Co.	28-20-16	7,390	suspended
Fresno Madera Oil Co., No. 1 Clovis, Fresno Co.	18-22-21	4,470	schist
Western Gulf, No. 1 Penoche Valley, Fresno Co.	26-15-12	5,480	sd. sh. drilling
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	4,019	suspended
Libby Pet., No. 1 Shandon, San Luis Obispo Co.	31-27-15	4,385	cleaning out
Paso Robles Synd., No. 1 Creston, San Luis Obispo Co.	27-27-11	3,941	cleaning out
Union, No. 1 King City, Monterey Co.	8-22- 8	3,250	suspended
Standard, No. 1 King City, Monterey Co.	23-22- 7	4,560	hd. sd. drilling
Pacific Inland Oil Co., No. 1 Parkfield, Monterey Co.	19-23-15	181	suspended
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	4,310	recemented
Penn Western, No. 1 Tulare Lake, Kings Co.	24-21-18	1,338	suspended
Wellport Oil Co., No. 1 Devils Den, Kings Co.	9-24-17	3,940	cleaning out
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	3,650	hd. sd. drilling
Barnhart Trust, No. 1 Oakdale, San Joaquin Co.	3- 2-10	3,535	suspended
Orinda Pet., Well No. 1, Contra Costa Co.	32- 1- 3	587	sd. sh. drilling
White, Roy, No. 1 Pixley, Tulare Co.	8-23-26	4,032	cleaning out
Terra Bella Oil Co., No. 1 Porterville, Tulare Co.	35-22-27	930	testing
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	660	hd. sd. drilling



Goodrich belts made of *Highflex Rubber*

SHOW ASTONISHING SAVINGS

REDUCES COST 74%

Photo shows one of the drives in the mill where the records described here were made. All drives operate under the same condition. Belts operate at an angle of about 45 degrees. Motor, 300 h.p.; 650 r. p. m.; motor pulley, 33 inches diameter; driven pulley 108 inches; belt speed approximately 5700 f. p. m. Size of belt on a majority of drives is 28-inch, 8-ply; some are 20-inch, 10-ply.

THE mill of a large western mining company has become a practical *proving ground* for power-transmission belting.

Results from Goodrich belting, made of the new Highflex rubber, show definitely the money saving which *any industry can make.*

In this mill are thirteen drives, all operating under the same conditions, on secondary crushers, handling ore.

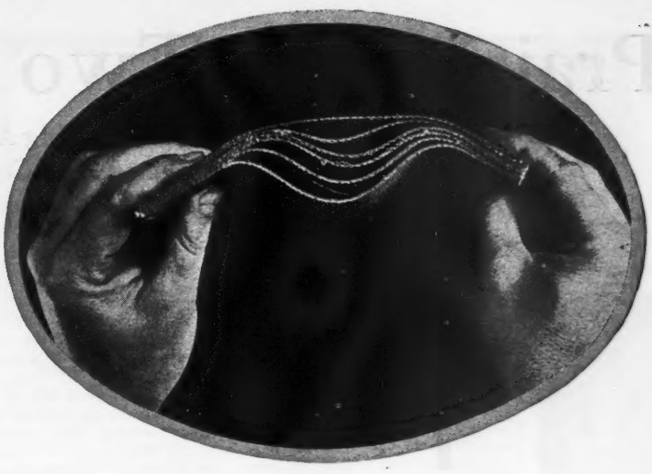
A Goodrich belt on one of these difficult drives has made a record of *1428 days!* The best record of any other belt is *less than half this service!*

But comparative records of all these drives are even more surprising. Three Goodrich belts were installed in 1925 and 1926. In 1927, *while these three belts were still running*, twelve other makes were tried out. Their average life was *300 days!* Belt cost per day was *94 cents.*

These first three Goodrich belts averaged *1195 days!* Belt cost per day, *24 cents!*

Applied to 13 drives this is equivalent to a yearly saving of approximately $2,800.

Since this test twelve other Goodrich belts have been installed. All are



These photographs show the importance of Highflex rubber in a transmission belt. They explain why Goodrich Highflex belts have outworn all others several times to one! See full explanation below.

at LARGE WESTERN MINE!

still running. Two drives were reserved for trying out other makes. On one of these the belt failed after 216 days. The best record made by any other is less than half the 1428-day record!

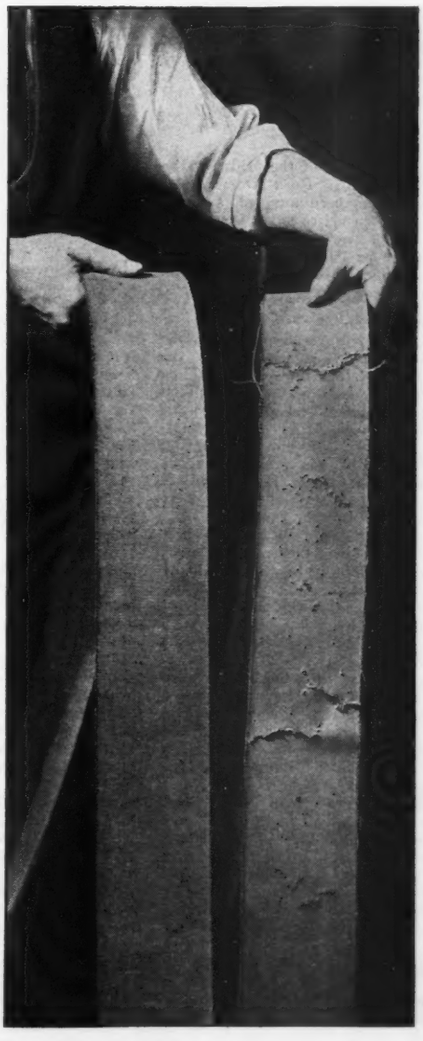
HIGHFLEX RUBBER is a Goodrich "belt friction," with exceptional power of recovery—and ability to stand *constant flexing*. The photographs at the top of the page show how important such rubber is in a transmission belt.

Left hand photograph shows a section of belt in which the plies have been separated and trimmed so as to be perfectly even. In center photo the same belt is shown curved around a 9-inch pulley. Note how the plies have changed their positions at the end.

In the photo at the right the belt has been curved with ends of the plies held firmly. Note how inside plies buckle. If you make this demonstration to yourself with a pad of paper, a pencil mark on the edge will show how the plies continually slide over one another.

This indicates the strain on the rubber every time the belt bends around the pulley; it shows the great importance of recovery and ability to stand constant flexing.

The B. F. Goodrich Rubber Co. (Est. 1870), Akron, Ohio. Pacific Goodrich Rubber Co., Los Angeles, Calif. In Canada: Canadian Goodrich Co., Kitchener, Ontario.



(RIGHT) *This photo shows the result of a recent test of a Goodrich Highflex belt with another belt, equal in original appearance and specifications. Both belts were joined into one piece for the test. After 425 hours of service, many times more severe than a belt ever receives in actual use, this photograph was taken. The astonishing superiority of the Goodrich belt is due largely to the Highflex friction rubber. Full details are available to users of belting on request.*

HIGHFLEX BELTING

Another B. F. Goodrich *Product*

Prairie Gets Two Producers at Hobbs

Pool Extended. Drilling Activity Increasing With 60 New Tests Planned. Eddy County Well Has Good Showing

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain area

DENVER, Colo., June 30.—The potential production of the Hobbs Pool in Lea County, New Mexico, was materially increased the past week by the completion of two excellent producers by the Prairie Oil & Gas Co. These wells are in the extension to the Hobbs Pool opened by the Midwest Refining Co. several months ago with the completion of a well on the Leach tract in No. 24 location on the NW of Section 15-19s-38e. The new Prairie wells are No. 1 Sellman which made 577 bbls. in two hours, and No. 1 Crump, two locations north of the No. 1 Sellman. The well on the Crump tract is credited with 5,124 bbls. in nine hours which makes it rank with the best of recent completions.

Drilling operations are very extensive in this area and 60 new tests are planned. Three wells were completed in the field the past week, 40 wells are drilling and five new locations have been made.

In Eddy County, New Mexico, the Pueblo Oil Co. had a good show of gas and the hole filled up 1,500 feet with oil from line pay at 3,400-05 feet in its No. 5 Russell, SW SW NW, Section 18, Township 17s, Range 31e.

The test to granite in Salt Creek Field, Wyoming, being conducted by Midwest Refining Co., has succeeded in shutting off a large flow of water and the well will be deepened from the Madison lime in which it is now bottomed to the Deadwood, the next objective. Total depth is 4,605 feet.

The large gas well of the Midwest Refining Co. on Bell Rock Dome, near Craig, Colo., has been mudded, and the well will be deepened to lower formations at once. This well gauged 30,000,000 feet of gas under 1,100 pounds rock pressure in an unidentified sand at 2,857 feet.

NEW MEXICO

Hobbs High—Lea County

Heavy rock pressure accompanying the numerous oil and gas horizons in the northern part of the Hobbs Field of Lea County, New Mexico, creates an outstanding drilling problem, and almost doubles the cost of drilling. It has been estimated that it costs between $75,000 and $100,000 to complete a producer in the 4,200-foot lime horizon. Humble Oil & Refining Co. in completing the first gusher in the area paid $165,000.

Drilling conditions in the north half of the field are classed as more difficult than those prevailing in the Oklahoma City Field, where production is found 2,000 feet lower, but a thorough study of the situation at Hobbs is being made with prospects of eliminating some of the heavy expense.

Natural clays, introduced to meet Hobbs Field conditions, have not proved satisfactory for making rotary fluid in handling excessive gas pressures, and manufactured admixtures are enjoying a big market. Humble attempted to handle the heavy gas pressure in its No. 1 Bowers with natural clays from Texas, but after losing control of the well on a number of occasions, introduced barite. The latter product is now more generally used in the heavy gas area than other admixtures, but costs about $50 a ton delivered so operators are inclined to substitute a large percentage of cheaper commodities.

Royalties from the Hobbs oil field are expected to begin pouring in within a few weeks, officials of the land office said recently. These royalties are expected to go far towards putting the schools for deaf, dumb and blind, the penitentiary and the reform school on a self supporting basis.

The above institutions own some 18,000 acres of land in the Hobbs area. The common schools own only approximately 5,000 acres.

This condition has revived talk of the necessity of lumping the oil royalties and prorating them among the common schools and the institutions of higher learning, the penitentiary, etc., as proposed several years ago when oil was struck on University land. From present outlook, the schools for deaf, dumb and blind will not need all the royalties they will eventually receive, while the common schools and a few institutions owning no oils lands will need considerably more than the money their lands return.

Drilling Activity

Efforts which have been made to prorate the oil production in the Hobbs High area have not met with success and several of the important operating companies have announced plans for extensive drilling campaigns. At the present time the Midwest Refining Co. has ten wells drilling in the field and lately the Shell Petroleum Corp. is said to be considering the drilling of 50 additional wells. The Landreth Production Co. has asked the Interior Department for permission to drill 10 wells on as many permits.

The Phillips Petroleum Co. has purchased the N half of NW of Section 4-19-38, near Hobbs, as a site for a new casinghead gasoline plant. Material has been shipped for the plant and actual construction is expected to start within the next ten days.

The Prairie Oil & Gas Co. has completed two excellent producers in the past week in the area opened by the Midwest Refining Co.'s Leach well. The Prairie's No. 1 Sellman, NW SW NE, Section 15-19s-38e, east offset to Midwest Refining Co.'s No. 24 Leach, had lime pay from 4,153-60 feet and made 577 bbls. in two hours. The Prairie's No. 1 Crump, NW NE NE, of the same section, and the second location north of No. 1 Sellman, had lime pay at 4,145 feet from which the well made 5,124 bbls. in nine hours. The well has been shut in for storage. The Prairie's No. 2 Crump, a location south of No. 1 Crump and a north offset to No. 1 Sellman, is drilling in lime at 4,002 feet and should be an early completion. The Walker Oil Corp.'s No. 2 Terry, SW cor., Section 10-19s-38e, offsetting the new Prairie producer No. 1 Crump, was a disappointment when compared with the Prairie well. It made 450 bbls. from lime pay at 4,170-82 feet in 24 hours. Deeper drilling to 4,190 feet did not increase the capacity of the well. Midwest Refining Co.'s No. 8 State, NW, Section 10, is drilling at 650 feet in broken sand and red beds. Midwest's No. 33 Byers, NE, Section 4-19s-38e, located half a mile northwest of the discovery well of the Hobbs Field, has an upper pay at 3,150-3,201 feet, from which the well flowed by heads. On a swabbing test the well made 16 bbls. of oil in three hours. This concern has cellar dug for No. 34 State, NW, Section 4, and No. 33 State on NW of the same section is a rig up. These wells are offsets to the Texas Production Co.'s No. 1 McKinley, NE NW SW, Section 4-19s-38e, which is spudding below 200 feet. The Midwest Refining Co.'s No. 8 State, NW, Section 4-19s-38e, is drilling in lime and anhydrite at 2,798 feet.

The Amerada Petroleum Corp.'s No. 1 McKinley, NW cor., Section 30-18s-38e, is drilling below 3,875 feet after landing 7-inch casing in lime at 3,851 feet. The Texas Pacific Coal & Oil Co.'s No. 1-G State, SE cor., Section 24-18s-37e, has reached a depth of 3,880 feet in lime and should be completed within the next few days. This well developed a show of 1,000,000 feet of gas in lime at 3,745-47 feet.

The Texas Production Co.'s No. 1 State, NE cor., Section 25-18s137e, is drilling below 2,975 feet in lime. The Shell Petroleum Corp.'s No. 1 State, SE SW NE, Section 32-18s-38e, 2 miles southeast of No. 1 McKinley, has been shut in after testing at a total depth of 4,175 feet. The well made 2,517 bbls. of clean oil in 14 hours, during which time it was flowing open for two hours and through tubing for 12 hours.

The Amerada Petroleum Corp.'s No. 1-A State, SW NW NE, Section 32-18s-38e, which lost circulation last week and blew in, making 25,000,000 feet of gas and spraying 400 to 500 bbls. of oil, has been mudded and is drilling below 3,182 feet, and its No. 3 State, SW, Section 4, is rigging up rotary. The same company's No. 26 State, SE, Section 4, is drilling at 1,020 feet in sandy red beds.

The Atlantic Oil Co. has cellar dug for its No. 1 State, NE cor., Section 6-19s-38e. The Ohio Oil Co.'s No. 1 State-Northrup, NE NW SE, Section 32-18s-38e, is cementing pipe at 3,850 feet, after which the well will be put to producing. No estimate has been made of the possible production, but it is reported that it will be a good well. The Gypsy Oil Co.'s No. 1 Grimes, NW NW, Section 32, has cemented 7-inch pipe at 3,935 feet and rig has been completed for No. 2 Grimes on NE SE NW of the same section. Shell Petroleum Corp.'s No. 2 State, NW SW NE, Section 32, is drilling at 3,030 feet after cementing 9⅝-inch casing at 2,750 feet.

The Humble Oil & Refining Co.'s No. 3 Bowers, SW SW SW, Section 29-18s-38e, is drilling at 2,751 feet. Its No. 7 Bowers, SW SW NW, same section, is drilling at 2,332 feet in salt and anhydrite. This same company's No. 2-A Bowers, NW cor. SE, Section 30-18s-38e, is drilling at 2,844 feet in anhydrite and lime and its No. 4 Bowers, SE cor., Section 30, is drilling at 2,716 feet in salt and anhydrite. No. 5 Bowers, NW NE SE, same section, is drilling at 2,713 feet in anhydrite. No. 6 Bowers, NE cor. SE, Section 30, is drilling in anhydrite at 2,545 feet. The California Co.'s No. 1 Grimes, NW SE SE, Section 29, is drilling at 3,400 feet and had a show of gas at 2,765-67 feet, and the Tidal Oil Co.'s No. 1 Grimes, SW NE SE, same section, is drilling at 3,815 feet.

George F. Getty, Inc.'s No. 1 McKinley, SW cor. NE, Section 30-18s-38e, is drilling in lime at 3,829 feet; No. 2 McKinley, SW SE NE, Section 30, is drilling at 3,659 feet, and No. 3 McKinley, SE cor. NE, Section 30, has landed 12½-inch casing at 217 feet.

Ohio Oil Co.'s No. 2 State-Northrup, C SE SE, Section 32-18s-38e, is spudding, and its No. 1 State, NE cor. SW, Section 30, is drilling below 3,630 feet. This well had a show of oil at 3,500-03 feet. The Landreth Production Co. is drilling at 3,085 feet in its No. 1 State, SW cor. SE, Section 7-18s-38e.

Maljamar Area—Lea County

Maljamar Oil & Gas Co.'s No. 3 Baish, NE NW, Section 21-17s-32e, is drilling at 3,855 feet.

Jal Area—Lea County

Midwest Refining Co.'s No. 34 Farnsworth, SE, Section 13-26s-36e, is drilling in anhydrite at 2,570 feet, and its No. 19 Farnsworth, SW, Section 14-26s-37e, is drilling in salt at 1,315 feet.

Cooper Area—Lea County

Texas Pacific Coal & Oil Co.'s No. 5-A State, NE, Section 20-23s-36e, is drilling at 627 feet.

Eunice Area—Lea County

The Atlantic Oil Co.'s No. 1 Coleman, NE NW, Section 17-21s-36e, is rigged up, and the Tidal Oil Co.'s No. 1 Coleman, SW cor. NE, Section 17-21s-36e, is drilling at 3,750 feet. The Ohio Oil Co.'s No. 1 State-McDonald, NW NW SW, Section 15-22s-36e, has reached a depth of 1,225 feet where it is shut down for water.

Eddy County

Lockhart & Co.'s No. 2-X Parke, NW NW, Section 23-17s-30e, is drilling in lime and anhydrite at 1,785 feet.

Pueblo Oil Co.'s No. 5 Russell, SW SW NW, Section 18-17s-31e, is drilling at 3,805 feet with 6⅝-inch casing set at 3,207 feet. This well had a good show of gas at 3,400-05 feet in lime and filled up 1,500 feet with oil from lime pay at 3,470-73 feet.

WYOMING

Minnesota Northern Power Co., which has recently taken over the plant and distributing system of the Sheridan Gas Co. in the town of Sheridan, Wyo., has announced through officials that pipe is ordered for the line, survey is made for the right of way from the Billy Creek gas field in Johnson County, and that actual construction of the line is to start about July 15. The line will be laid by the Hope Engineering Co. of Mount Vernon, Ohio, and some 300 to 400 men will be employed on the work. In Sheridan the 3-inch and 4-inch distributing lines will be replaced by 8 and 10-inch lines where heavier demand requires it. This is to be done during the month of August. Date for the completion of the line is set at September 30.

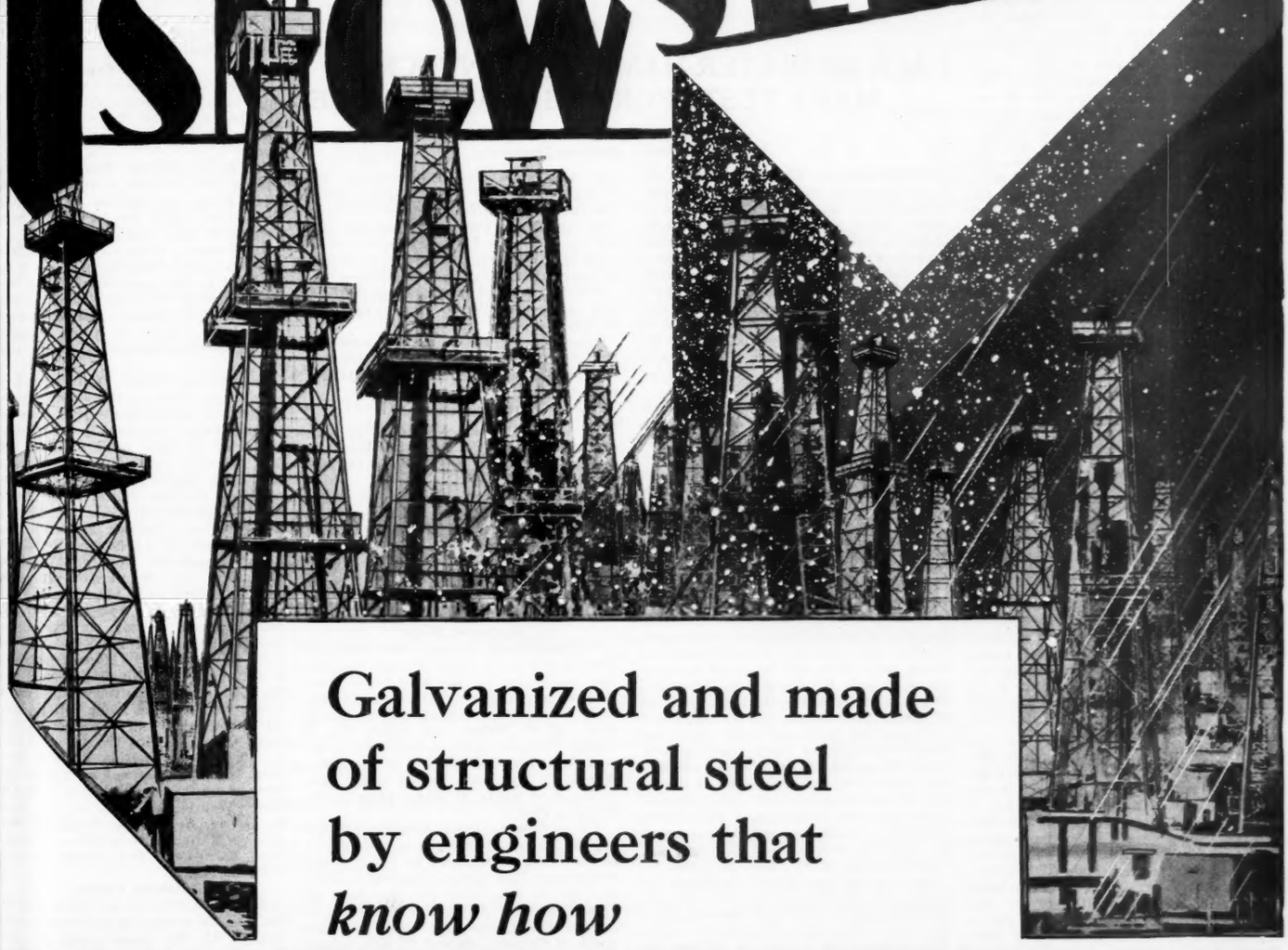
A bill sponsored by the late Senator F. E. Warren of Wyoming, was passed by Congress on June 25, which gave to the Oregon Basin Oil & Gas Co., valuable leaseholds in the Oregon Basin Field of Park County, Wyoming. The bill was handled in the Senate by Senator Kendrick, and in the House by Representative Vincent Carter, both of Wyoming. The passage of this bill successfully ended efforts of several years to obtain recognition by the Government of the company's equities in the Oregon Basin Field. The Oregon Basin concern applied for patents on land under the old placer mining law. They were refused, precipitating a long controversy which now has been settled. The company has been given preferential rights to lease 800 acres at 12½ per cent royalty to the Government. Officials of the Interior Department endorsed this settlement of the dispute, so the Government can obtain the stated royalties. Surrounding wells now draining the pool are paying only 5 per cent royalty. Original claimants applied for 1,600 acres, but the Senate cut this figure in half.

Park County

In the Oregon Basin Field, the Lenco Petroleum Co.'s No. 2 Rousseau, NW SE NW, Section 33-51n-100w, produced 60 bbls. of oil at a total depth of 3,830 feet and is being completed. Wyoming Western Oil Co.'s No. 3 Hough, SE cor., Section 18-51n-100w, is shut down at 4,828 feet. It has been in the Madison lime for some time and had hot sulphur water at 4,753-58 feet. C. E. Orchar's No. 7 Rue, Section 28-51-100, is shut down at 3,572 feet. Wy-Tex Oil Co.'s No. 1, Section 16-51-100, is shut down at 750 feet. Wyoming Western's well

(Continued on Page 114)

IDECO OR SNOW SHEET



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Export Offices—90 West Street, New York City; Columbus, Ohio; Houston, Texas; Los Angeles, Calif. 605

Busy Season in Central Ohio Fields

Total of 48 New Operations During Week. Sullivan County, Indiana, to Get Revival in Test Work This Summer

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, June 30.—Little was accomplished in any part of the Central West Field for the week, with the exception of the Central Ohio Division which has been an actively developed area almost the year around on account of hunt for both oil and gas, the latter being of much importance at this time in all the fields of the country.

Few wells are reported from the old Lima Field of northwestern Ohio, there being more old wells abandoned than new ones drilled. Kelley Brothers drilled a test in the northwest corner of the Earl B. Brown, in Perry Township, Wood County, south of Fostoria, known on the oil map as the Ida E. Davis farm, the well pumping 2 bbls. the first 24 hours at a depth of 1,339 feet which is in the Trenton Rock. In Lake Township, same county, Charles F. Zeising abandoned No. 7 Emil Berndt farm, Section 36. In the Prairie Deport Field, Montgomery Township, same county, Dicken & Dicken abandoned Nos. 1, 2, 3, 4 and 5 G. B. Hedge, Section 17; Argue and others did the same with old Nos. 1, 2, 3, 4, 5, 6, 7 and 8 James Caskie farm, Section 18. W. L. Hierley pulled out Nos. 1 and 2 John M. Adams, Section 30, and the Ohio Oil pulled out No. 1 H. L. Byington, Section 25, same township. Lindy Airway Oil Co. is drilling No. 4 Simon A. Ackenberger, Section 32, Lake Township, same county.

Metzger Brothers' No. 5 well, 450 feet from the north line and 800 feet from the east line of the Henry Metzger farm, NW, Section 22, Spencer Township, Allen County, produced an initial of 10 bbls. from 1,168-1,208 feet.

In Rice Township, Sandusky County, W. C. Richards and others' No. 1 Fred Gnepper farm, Section 30, is a light gas well, and will be connected to the gas line which passes through the county. Near Rollersville, in Woodville Township, same county, Pool, Sager & Taylor pulled out old Nos. 8, 11, 15, 16, 17, 18, 19, 20 and 21 John F. Emch, Section 18. This farm proved a very productive one for many years, having been drilled along in the early nineties. In Scott Township, same county, the North Ohio Oil Co. abandoned Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 M. E. Pember farm, Section 5. In Washington Township the Home Banking Co. is drilling No. 6 on the Edith Fought farm, Section 11, same county.

Tiffin Field

In the Tiffin Field, Seneca County, the Kansas-Ohio Oil & Gas Co. is drilling on the R. E. Harrison farm, Section 1, Jackson Township. August Oil Co.'s No. 5 well, 600 feet from the north line and 250 feet from the west line of the August Flechtner farm, on the old oil map as the A. Skranzefky farm, Section 27, Liberty Township, was dry in the Trenton from 1,354-1,510 feet, or 146 feet in the Trenton. McPherson & Fossen Oil Co. is drilling No. 1 on the Charles and Otto Ewald, Section 36, same township. Honey Creek Oil Co. is drilling a wildcat on the Gilbert Berten farm, Section 33, Scipio Township.

In Cessna Township, Hardin County, there is considerable new work starting. Chaney and others are drilling No. 1 Frank B. Wilson, Section 13, and No. 1 on the Frank Kritzler, same section. J. W. O'Neil is drilling No. 1 F. Wedertz farm, Section 24. Bryan & Ricketts are drilling No. 1 Henry Ziegler, also in Section 24, while the Kemrow Oil Co. is drilling No. 1 C. W. Faulkner, Section 14, and No. 2 on the Elmer Kreitzler, Section 13. Grant Geiger's No. 2 is being drilled by the Geiger Oil Co., No. 1 being a well rated as a 300-bbl. initial producer when brought in a week or so ago. Jupiter Oil Co. of Columbus is drilling on the Ora T. Price, Section 13, all in Cessna Township. In Pleasants Township, same county, the Jupiter Oil Co. is drilling No. 1 George A. Matthews 122 acres, Section 18, and No. 1 Anna Traeger 160 acres, Section 9, same township.

CENTRAL OHIO

The usual activity was shown in the Central Ohio Field the past week, there being 33 completions, 8 producers with an initial of 212 bbls., 8 dry holes and 16 gas wells. There were 19 new locations made and 29 new wells started spudding or moving in the drilling tools, a total of 48 in new work.

In Ashland County, Orange Township, the Ohio Fuel Gas Co. has a gas well in No. 2-5,131 on the Al Ott, Section 29. Same company has one drilling and also a new location in the same township. Preston Oil Co. is drilling No. 1-1,427 Ellis A. Morris, Section 34, Mohican Township. Coast and others' No. 9 Edward Barnhart farm, Section 29, Perry Township, produced an initial of 9 bbls. from 742-58 feet. In Montgomery Township, the Ohio Fuel Gas Co. has a dry hole in No. 1-5,135 J. F. Long farm, Section 2, and a gas well was drilled by the Kemrow Co. in No. 2 on the John L. Smith, Section 1, from 2,715-25 feet.

In Medina County, Harrisville Township, the Ohio Fuel Gas Co. has a new gas well in No. 1-5,117 Walter E. Buck, Section 29. Same company is drilling No. 1-5,191 Frank Henry, Section 8, and made a location for No. 2-5,216 M. S. Payne farm, Lot 70, same township.

In Lorain County, Carlisle Township, McMillan and others are drilling No. 2 Eliza Price, Section 21, and the Wiser Oil Co. made a location on the A. and M. Baus farm, Lot 69, Amherst Township.

In Wayne County, Congress Township, Barnhart and others' No. 5 K. W. Taylor, Section 5, is a light gas well from 2,974-3,002 feet. Ohio Fuel Gas Co. has a gas well in No. 1-5,096 George Wohlgemuth farm, Section 32, same township. Faulkner and others are drilling No. 5 J. W. Cutter, Section 18, Franklin Township.

In Holmes County, Hardy Township, Ohio Fuel Gas Co. has a dry hole in No. 1-5,088 Eliza A. Uhl, Lot 34, same township. Lydic Oil & Gas Co. is drilling No. 5 Charles Swank farm, Section 10. In Richland Township, the East Ohio Gas Co. has a dry hole on the Bertha E. Johnson, Section 4.

Ashtabula County

In Ashtabula County, Conneaut Township, Schaeffer Brothers' No. 2 Jess L. Shaffer tract, Lot 48, was fortunately made a gas well with a volume of 250,000 feet.

In Knox County, Brown Township, Upham Gas Co. has a dry hole on the Zion Church lot, Section 3. East Ohio Gas Co. is drilling No. 12 Charles Scoles, Section 30, same township.

In Summitt County, Franklin Township, the East Ohio Gas Co. got a nice gas well in No. 4 on the Edward Dunn farm, Section 35, from 3,981 to 4,010 feet, and F. A. Brendall and others struck a good gas volume in No. 1 D. and S. Thursby farm, Section 35, same township.

In Licking County, Fallsburg Township, the Wittmer Properties, trustee, drilled in a second test on the Amos Van Winkle farm, Section 13, producing an initial of 55 bbls. from 2,947 to 3,002 feet. Murphy and others' second test on the Jacob Hackley farm, same section, produced 60 bbls. initial from 2,950-98 feet. Whitehill Oil Co.'s No. 15 A. A. Ashcraft farm, Section 2, Perry Township, is good for 5 bbls. from 740-52 feet.

In Muskingum County, Washington Township, the Wittmer Properties, trustee, drilled in a nice gas well in a second test on the Thomas J. Chaplin, fourth-quarter section, in the Clinton formation topped at 4,005 feet, pay sand from 4,017-23 feet. Hope Construction & Refining Co.'s No. 5 Joseph Varner, Section 5, Hopewell Township, produced a nice volume of gas along with an initial oil production of 40 bbls. from 3,101-43 feet. Ohio Fuel Gas Co.'s No. 1-5,061 J. L. Sutter farm, Section 7, Perry Township, is a light gas well at around 4,080 feet, where it was filled back from 4,149 feet. Wehrle Co.'s test on the Chester O. Hardy, Section 15, Highland Township, is a light gas well in the Clinton from 4,380-4,416 feet, which is in the Clinton lime.

Athens County

In Athens County, the Ohio Fuel Gas Co. has an average gas producer in No. 1-5,140 C. W. Green farm, in Ames Township, in the lower Berea sand from 1,396-1,419 feet, total depth 1,425 feet. Gross & Freebault have a very light gas well on the Elsworth Knowlton, fractional Section 25, Lee Township, same county, in the upper Berea from 1,113-17 feet.

In Meigs County, Sutton Township, the Preston Oil Co, has what is reported at 5 bbls. in No. 7-1,416 C. and W. Easterday farm, Section 18.

In Tuscarawas County, Oxford Township, the Gordon Oil Co. has a fair gas well in No. 3 Phil Lamneck farm, Sec-

(Continued on Page 122)

LACK OF WATER HAMPERS KENTUCKY; MANY TESTS FOR GAS IN TENNESSEE

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., June 30.—Work in the Kentucky fields has been seriously hampered for some time through lack of water. Many drilling outfits have been operating but one tour a day, while some have been compelled to haul water for a long distance or compelled to cease work altogether. Various springs that have yielded abundantly of water in the past, even through dry periods, have failed this year, or else dropped almost to the vanishing point, hence very few completions were reported from any section of the State.

The outstanding feature of the week is the finding of a gas well far above the average by the Consolidated Utilities Co., on the Jamieson farm, in Metcalf County, with a volume of 4,500,000 feet, one of the best found in that county for a number of years. Gas from the Metcalf County area will be marketed in Bowling Green, as the laying of a pipe line is already under way, which will pass through the towns of Horse Cave, Cave City, Smiths Grove and others in the vicinity. The gas industry in Kentucky is growing at a rapid rate and the same results are due in Tennessee where some excellent gas wells have been developed of recent date. Gas can be found in many parts of both Kentucky and Tennessee, and it is only a matter of time until most of the southern states will be using natural gas for light and heat. Gas has been overlooked for many years in Kentucky, Tennesse and other states south of the Ohio River, but now there is a change and many operators are well satisfied when they run into a good gas volume which in a short time will have a ready market most anywhere in Kentucky and Tennessee and other adjoining states.

Only a few days ago J. D. Cooper, a banker at Fordsville, in Ohio County, Kentucky, while drilling a water well in the rear of his residence, struck a good flow of gas and it will be utilized for fuel in his home. The well was drilled by Barney Calvert.

Ohio County

In Ohio County, the Cumberland Petroleum Co. brought in a second test on the W. A. Moseley farm, and No. 1 on the Small Skillman farm, in the Buford Field, both making commercial producers.

Doctor Buckner and others' test 600 feet from the south line and 200 feet from the west line of the J. P. Simpson farm, in the Buford area, is reported a duster.

James C. Ellis and others report two nice gas wells just completed on the Wedding heirs and J. W. Moseley farms, the first well getting its gas at 476 feet.

S. B. Berry and others' second test on the J. J. Smith farm, 3 miles southeast of Whitesville, found a 10-bbl. pumper in the Stray sand at 480 feet.

Stewart & Weir found a 750,000-foot gas well on the W. H. Haynes farm, in the Barlow sand.

Thrasher, Brewer and others report a gas well with a volume of 2,750,000 feet on the Bud St. Clair farm in the Dundee area of Ohio County at 330 feet.

Daviess County

R. W. McMahan's No. 1 on the Van Cleve farm, in the Maxwell Pool, in Daviess County, is reported showing for 50 bbls. initial.

Evans & Garrison's No. 5 on the J. M. Clark south 90 acres, in the Utica Field, produced 20 bbls. initial from the Jett sand at 1,173 feet.

Rex-Pyramid Oil Co.'s No. 3 Yeiser farm is reported a dry hole, which followed the big producer found on the lease some weeks ago.

Scattered Wells

In Henderson County, the Niagara Field is still in an active development, the best completion for the week being John B. Lyddane, trustee's No. 8 on the C. M. Gish 200 acres, with an initial of 30 bbls. H. C. Wilson and others' No. 3 George Rideout, in the Sebree Pool, is reported good for 900,000 feet of gas. Henderson Oil Syndicate drilled a dry hole in No. 4 on the G. H. Fryor farm in the Niagara Pool.

In the Calhoun Field of McLean County, the McLean Development Co.'s No. 1 on the G. B. McManama 50 acres, in the Grindstone Hill area, is reported showing for 50 bbls. from the Jett sand at 1,100 feet. J. C. Ellis and others' No. 1 on the O. O. Sandefur farm, 2 miles north of Calhoun, showed 35 bbls. initial from the Jett sand at 1,200 feet.

Eastern Kentucky

In District 22, Lawrence-Johnson Counties in the eastern part of the State, the Swiss Oil Corp.'s Nos. 47, 48 and 49 J. J. Gambill farm produced 8, 5 and 11 bbls., respectively. In District 32, same counties, the same company completed Nos. 52 and 62 P. P. Holbrook farm for 8 and 5 bbls., and No. 39 Jess Lyons farm, same district, 5 bbls.

Field Pick-Ups

The Kentucky-Florida Oil Co. is start-

(Continued on Page 170)

ECONOMY RECORDS IN THE OKLAHOMA CITY FIELD!

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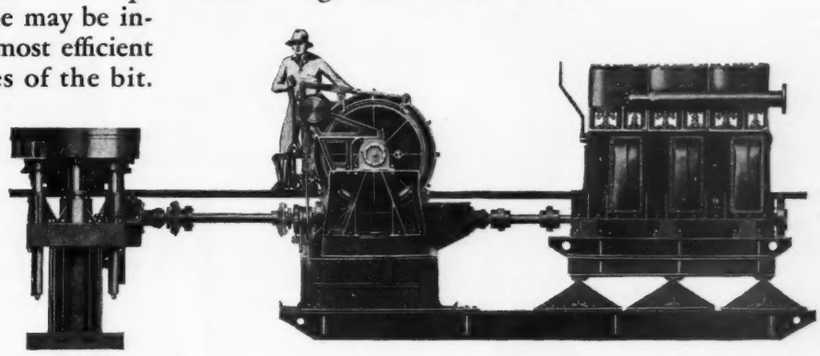

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Caught by the Camera in Several Active Areas

(1) Left to right, top row: E. J. Smith, Alfred Mabry and G. H. Vandervort. Bottom row, left to right: A. E. Henderson and P. H. Williams, the latter owner and operator of the deep cable tool test in Irion County, Texas. (2) H. C. Hauk, chief engineer, Consolidated Gas Co., Wichita, Kans., station. (3) C. A. Young, American Petroleum Institute, Dallas, Tex. (4) John Raring, tool pusher; Lloyd Noble, and Marian Tate, tool pusher; Noble & Olson Drilling Co. (5) E. G. Guy, superintendent, The Old Dutch Refining Co., Muskegon, Mich. (6) J. W. Jordon, superintendent of production, Maud district, Sinclair Oil & Gas Co. (7) Roy Hawkins, chief warehouseman; A. J. Leonard, superintendent of construction, Empire Gas & Fuel Co., Oil Hill, Kans. (8) R. B. Hovis, plant superintendent, Michigan Central Refining Co., Muskegon, Mich.

Running Permian Crude to Storage

Yates Pool Cut 10,000 Bbls. Penn Pool Proration to Be Considered. Andrews County Test Discouraging. Small Well in Irion

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 30.—Running crude to storage in the Permian Basin for the first week in many months may be an interesting bit of news to those operating or watching West Texas production and activities, and another cut of 10,000 bbls. daily in Yates Pool, Pecos County, production may be another interesting feature to many, while wildcat activities and field wells practically "marked time" during the week, Lea County, New Mexico, attracting much attention from the West Texas counties.

Daily average production gained a little over 4,700 bbls. this week while distribution tobogganed from 335,864 bbls. daily from the previous period to 297,635 bbls., with the result that over 153,600 bbls. went to storage during the week. Pipe line runs fell from 281,465 bbls. per day to 238,749 bbls., while runs to local refineries picked up a little from 29,880 to 35,248 bbls., tank car shipments falling off almost 1,000 bbls.

Penn Pool Proration

Penn Pool advisory committee will hold its first meeting in Fort Worth July 7 to discuss the necessity of prorating that field which is now averaging over 20,000 bbls. daily with a short extension to the south by Transcontinental Oil Co.'s No. 1 University in the NE Section 3, which came in for an initial production of 556 bbls. after a 250-quart shot from 3,589-3,690 feet, the latter being the total depth. The well did not flow before the shot, not presaging so much for other tests to the south, but the shot brought out an average well for the field where all wells are being shot before completed.

Skelly Oil Co. and Republic Production Co.'s No. 1 McKenzie, in Section 28, Block 45, 2-S, T.&P. Survey, northwest extension well, which came in last week bearing with it possibilities of intervening production, is still shut down at 3,695 feet, and has made only one flow, not appearing as much of a well at this depth. It topped the pay at 3,665 feet and encountered an increase at 3,685 feet. The Texas Company-Cosden Oil Co.'s No. 8 Connell, 1 mile to the south of the well, and one-half mile north of production in the Penn Pool, will be an interesting test, bringing production to the area between the two producing wells, and proving considerable more acreage to the northwest of the Penn Pool, in case it is a commercial producer.

Sunray and Llano Oil Co.'s No. 1 Jones, 440 feet from the east and 2,987 feet from the south lines of Section 6, Block 44, a half mile north of the Shell Petroleum Corp.'s producer, should be completed in a few days as it is now drilling below 3,450 feet after cementing casing at 3,289 feet. This will mean a half mile due north extension in case it is a commercial producer. Independent Oil & Gas Co. and Tidal Oil Co.'s No. 1 Eidson which was drilled three-quarters of a mile to the west of the Sunray test is still shut down at 3,800 feet after making but little oil, and marking a defining point in this direction from the pool.

Andrews County Test

The Ogden or Deep Rock area in Andrews County has lost practically all of its interest since No. 1 King in Section 11, Block A-46, has not been showing up favorably with tubing in the hole. It is still shut down at 4,454 feet, and tubing is to be rerun in an effort to make the well flow. The last gauge was 60 bbls. through tubing.

No. 1 Mathis in Section 4, same block and survey, is now drilling below 4,750 feet, after encountering one bailer of sulphur water per hour from 3,719-23 feet. This well looks rather discouraging as does No. 1 Miles in Section 22, which is mudding casing at 4,581 feet. It was believed the casing seat gave way or another hole full of water was encountered at 4,570-76 feet. Three thousand feet of sulphur water was picked up from 4,390-95 feet and 5⅜-inch casing was set at 4,506 feet.

Crane County Wildcat

Cranfill Brothers and Gulf Production Co.'s No. 1 Tubb in Section 8, Block B-27, on the western side of Crane County, the wildcat which had been attracting considerable attention for some time, except for the past few weeks when it seemed to be deeper than where any pay formations were expected, is now drilling at 3,785 feet in brown lime with a half barrel of oil and water, which is believed by many to be coming up the hole from around 2,994 feet where it picked up a small showing of oil. Small hopes are held for making a commercial producer and opening up a new field in this area, as was first believed.

Yates Pipe Line Requirements

Beginning July 1, the pipe line companies serving the Yates Field, Pecos County, have announced the following requirements: Shell Pipe Line Co., 24,500 bbls. per day; Humble Pipe Line Co., 25,000 bbls.; Gulf Pipe Line Co. (own oil), 13,850 bbls. per day; Illinois Pipe Line Co., 36,650 bbls. per day, making a total of 100,000 bbls. per day for the field, at which amount it was prorated for the next six months.

Irion County Well

Irion County was rewarded with another small high gravity sweet oil well this week in Straugh and Texannati Oil Co.'s No. 1 Nutt, NW, Section 6, Gonzales County School Land. Total depth of the well is 1,449 feet and the pay was topped at 1,339 feet, the well pumping better than 100 bbls. in its first 24-hour pumping period. The oil is going to lease storage at present, but will probably be sold to the San Angelo refinery at San Angelo where Cromwell's production is now being transported by tank cars from a small loading rack near Mertzon on the Santa Fe Railroad.

Although wells in this area are small, the high gravity sweet oil makes it more valuable than the sulphur crude from the rest of the Permian Basin, and the shallow depth of the wells makes drilling exceedingly cheap compared to the deep wells which are drilled in the surrounding territory.

Big Lake Pool

The deep wells in the Big Lake Pool, Reagan County, are attracting considerable attention as several increased in production since deepening, similar to the increase in the first deep well, Texon's No. 1-B University.

Big Lake Oil Co.'s No. 2-C, which formerly produced at 8,242 feet, cleaned itself and flowed 127 bbls. in six hours on June 28, flowing 377 bbls. in 18 hours with 13,120,000 feet of gas. The increase was logged at 8,565 feet. Texon's No. 2-B University has increased to 1,865 bbls. per day with 32,300,000 feet of gas on June 30, and No. 3-B flowed 535 bbls. with 6,600,000 feet of gas from 8,637 feet. No. 1-B flowed 2,793 bbls. with 27,579,000 feet of gas.

The Atlantic Pipe Line Co. is about ready to test its 8-inch pipe line from Midland, Tex., to the Hobbs high area in Lea County, New Mexico, and expects to be running oil in the second week in July. This line will transport about 25,000 bbls. of crude daily from the Hobbs area to the Midland tank farm thence to the Gulf Coast at Atreco through Atlantic's 10-inch from Midland.

WEST TEXAS STORAGE REPORT

County—	Storage building	Present stock	Present room	Present capacity
Crane	none	6,571,752	2,775,248	9,347,000
Crockett	none	12,328	42,672	55,500
Ector	none	110,911	84,089	195,000
Howard	none	1,237,267	430,733	1,668,000
Lea Co. (N. M.)	64,000	277,795	324,205	602,000
Midland	none	9,824,424	1,525,576	11,350,000
Mitchell	none	438,808	76,192	515,000
Pecos	none	1,087,458	435,542	1,523,000
Reeves	none	37,862	227,138	265,000
Reagan	none	2,067,291	1,375,709	3,443,000
Val Verde	none	1,210,152	789,848	2,000,000
Upton	none	2,074,485	3,174,515	5,249,000
Ward	none	3,631,366	2,683,634	6,315,000
Winkler	none	7,791,928	4,679,072	12,471,000
Total	64,000	36,373,827	18,624,173	54,998,500

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended June 30

ANDREWS COUNTY

Company, well, farm, name, section and block—	Remarks—
Deep Rock Oil Co. et al's No. 1 Mathis, 900 ft. from S and W, Sec. 4, Blk. A-46, Public School Land	Est. 1,500,000 ft. gas; ¾ bbl. oil per hour; show gas 4,166 ft.; show oil 4,185 ft.; increase at 4,281 ft. and 4,351 ft.; drlg. 4,734 ft.
Deep Rock Oil Co.'s No. 1 Miles, 990 ft. S, 1,650 ft. E of NW cor., Sec. 22, Blk. A-46, School Land	Show oil 4,240 ft. and 4,270 ft.; mudding 5 3/16-in. casing; total depth 4,581 ft.
Fuhrman Pet. Corp.'s No. 1 Ford, 440 ft. from S and 2,200 ft. from W of Sec. 16, Blk. A-43, Public School Land	Drlg. 3,780 ft.
Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E, Sec. 11, Blk. A-46	Top pay 4,335 ft.; swabbed 476 bbls.; total depth 4,454 ft.; 3,500 ft. oil in hole; now agitating; swabbing 60 bbls. daily; to rerun tubing.
Maer & Staniforth's No. 1 Meador, C SW Sec. 8, Blk. A-41	Rig.
R. R. Penn's No. 1 Wilson, C, Sec. 20, Blk. A-37, School Blk.	Drlg. 2,780 ft.

BREWSTER COUNTY

Brewster Oil Co.'s No. 1 Fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,250 ft.; hole full water 1,135-85 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F.R.R. Sur.	Show oil 1,830 ft.; shut down 2,345 ft.
Van McPhail's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,750 ft.

COKE COUNTY

Arkansas Fuel Oil Co.'s No. 1 Stepp, 1,020 ft. NE, 2,340 ft. W of SE cor., Sec. 35, Blk. 1-A, H.&T.C. Sur.	Shut down 3,050 ft.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft.	Shut down 3,273 ft.; show live oil 3,275-78 ft.

CONCHO COUNTY

Beesley et al's No. 1 S. Waring Est., 1,320 ft. from S and E of A. T. Robinson Sur., Abst. 2,120	Machine.
Turner et al's No. 1 Borrig, 150 ft. from S of NE cor., G. Emmig Sur. 130, 6 mi. W of Paint Rock	Shut down 735 ft.

(Continued on Page 111)

WEST TEXAS PRODUCTION

Week Ending June 28

County—	No. wells	Prod.
Andrews	1	97
Crane	345	32,330
Crockett	48	1,820
Ector	46	20,495
Fisher	7	990
Garza	5	50
Glasscock-Howard	513	29,680
Irion	3	95
Jones	73	1,360
Loving	23	1,450
Mitchell	146	2,165
Pecos	469	119,590
Reagan	257	17,515
Runnels	3	14
Scurry	5	15
Taylor	2	111
Upton	248	6,765
Ward	25	2,160
Winkler	546	69,245
Grand total this week	2,815	305,947
Grand total last week		301,614
Difference		4,333

WEST TEXAS COMPLETIONS

Week ending June 28

Crane County

Humble Oil & Refining Co.'s No. 9 University, an old completion, now dry and abandoned. Magnolia Petroleum Co.'s No. 4 University-Okeffe, an old completion, now dry and abandoned. Tidal Oil Co.'s No. 8-I University, an old completion, now dry and abandoned. Warner-Quinlan Co.'s No. 1 Collett-University, an old completion, now dry and abandoned. Warner-Quinlan Co.'s No. 6 Collett-University, an old completion, now dry and abandoned. Warner-Quinlan's No. 7 Collett-University, an old completion, now dry and abandoned.

Culberson County

Scott & Ditman's No. 1 Miller, temporarily abandoned; total depth 3,508 feet. Hickey & Stevens' No. 1 Finley, dry and abandoned; total depth 2,907 feet. West Coast Oil & Exploration Co.'s No. 1 McGregon, temporarily abandoned; total depth 875 feet.

Ector County

Amerada Petroleum Corp. and others' No. 2-B University, top of pay 3,610 feet; shot 90 quarts 3,690-3,702 feet; initial production 417 bbls. after shot; 195 bbls. before shot; total depth 3,702 feet. Cosden Oil Co.'s No. 1-C University, top of pay 3,552 feet; shot 120

(Continued on Page 152)

New Wildcat in Southern Gray County

Finley-Brown Field Has Short Extension. New Area West of White Deer in Carson County. Potential Field in Archer County

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., June 30.—Semi-wildcat territory in southern Grant County was made more interesting this week when the Vulcan Oil & Gas Co.'s test in the W half NW, Section 25, Block 25, H.&G.N. Survey topped a pay at 2,780 feet and was showing up as a small producer with gas, estimated from 3,000,000 to 4,000,000 feet, giving good chances for production to this area near which several small producers have been drilled, and several dry holes. The nearest big production is in the LeFors Pool several miles to the northwest.

One of the best wells completed in Gray County for some time was completed this week by The Texas Company in its No. 9 Cook-Faulkner. It had a showing of oil at 2,715-20 feet and another from 2,760-70 feet with an increase at 2,783 feet where it was shut down and put on production, making 2,516 bbls. of oil with 4,000,000 feet of gas the first 24 hours.

The Wilcox Oil & Gas Co.'s No. 15 Combs-Worley marked a short extension in the Finley-Brown Pool this week when it was completed for 5,960 bbls. initial production from a total depth of 2,851 feet. Top of the granite wash pay was logged at 2,845 feet. It is located in Section 35, Block 3, I.&G.N. Survey and marks one of the largest wells completed in this area.

West of White Deer

Empire Gas & Fuel Co.'s No. 2 Field, located 990 feet from the north and west of Section 13, Block 4, I.&G.N. Survey, in the new area which was recently opened by this company in its No. 1 Fields discovery well, came in for an initial production of 234 bbls. the first 24 hours, but dwindled to 152 bbls. the second 24 hours. Top of the pay is 3,228 feet, 3,246-50 feet and 3,258-67 feet. Total depth is 3,626 feet. This well is not showing up as favorably as its predecessor, and the area does not look as promising as when the discovery well came in for better than a 1,250-bbl. well at a total depth of 3,232 feet. This pool is just a few miles west of White Deer in Carson County, and is the first pool on the south side of the granite ridge from which production is coming in the Panhandle counties to the north.

Potential Field in Archer

Archer County had a potential field in the making in a semiwildcat area 2½ miles northwest of Anarene in Pois and Weaver's No. 1 Green in the SE cor. of the north 40 acres of the west 80 acres of the south 160 acres, Levins Survey, Abstract 259. Total depth of the well is 1,146 feet and top of the pay is 1,128 feet. It is estimated good for around 100 bbls. per day.

Danciger Oil & Refining Co.'s No. 1 Truenbach in the J. Clark Survey, Abstract No. 194, 5 miles north of Muenster and 2 miles north of production in Cooke County is still shut down at 960 feet after topping the pay at 952 feet. It was shot with 3 quarts and the hole filled 300 feet with oil and 100 feet with water, making possibilities of a good well look rather slim at the present writing.

The Prairie Oil & Gas Co. and Amerada Petroleum Corp. have a small gas well in their No. 2 Allen and Richie near their No. 1 Vick discovery in the north half of the L. J. Pitts Survey, the second test marking an extension of production 500 feet east. A showing of oil was registered in No. 2 Allen and Richie test at 1,402-12 feet and a gas sand was logged at 1,419-20 feet making 2,793,000 feet of gas. It is now shut down at 1,671 feet. No. 1 Vick is producing from the Strawn sand at a total depth of 1,560 feet. It was completed for around 200 bbls. initial production December 16, 1929. The Transcontinental Oil Co. drilled a dry hole to the north and east of the discovery, in the SE cor. of Section 857, some few weeks ago, ruining chances for the extension of production in that direction.

New Castle Pool

The New Castle Pool in Young County is now producing better than 10,000 bbls. of oil per day, with the several producing areas between Olney and New Castle being extended in various directions, threatening the linking of production for the full 6 to 8 miles between the two towns. The Prairie Pipe Line Co. is the only company having a line into this area and is taking only 2,500 bbls. per day, thereby prorating the pools to that amount, and curtailing production to some extent.

Roeser & Pendleton's No. 89-A Cook in Section 60, E.T.A.R. Survey, Shackelford County, registered an oil showing and 100,000 feet of gas at 4,637-45 feet from a pay horizon which is associated with the Lake sand horizon of Eastland County, but a hole full of water was picked up at 4,645-48 feet. Another showing of gas was later encountered at 4,830 feet below which it is now drilling.

The Overall Pool of Coleman County produced 621 bbls. of oil on the last 24-hour gauge.

COMPLETIONS IN PANHANDLE

Week Ending June 28

Carson County

Cockrell-McIlroy's No. 1 Eller, total depth 3,629 feet, plugged back to 3,160 feet, shot 250 quarts at 2,465-2,715 feet; initial production 13,500,000 feet of gas. Continental Oil Co.'s No. 3 Block, total depth 3,135 feet, shot with 330 quarts from 3,044-3,135 feet; initial production 110 bbls. Danciger Oil & Refining Co.'s No. 1 Byrum, top of pay 3,225 feet, initial production 150 bbls., total depth 3,270 feet.

Gray County

Danciger Oil & Refining Co.'s No. 1 Shaw, top of pay 2,663-2,710 feet, initial production 30 bbls. oil, with 10,000,000 feet of gas; total depth 2,748 feet. Nabob Oil Co.'s No. 2-A Morse, top of pay 2,591 feet, initial production 75 bbls. oil with 3,000,000 feet of gas; total depth 2,606 feet. Operators Oil Co.'s No. 1 Bowers, total depth 3,474 feet, plugged back to 3,100 feet, top of pay 2,965 feet, shot with 95 quarts from 2,965-3,055 feet, initial production 20 bbls. The Texas Company's No. 2 Archer, pay 3,245-50 feet and 3,255-62 feet, initial production 144 bbls., total depth 3,270 feet. The Texas Company's No. 9 Cook-Faulkner, show oil 2,715-20 feet, 2,760-70 feet, increase at 2,783 feet, initial production 2,516 bbls. oil with 4,000,000 feet of gas, total depth 2,783 feet. The Texas Company's No. 4 Wright, show oil 2,695 feet, 2,700, 2,760-70 and 2,815-30 feet, initial production 873 bbls., total depth 2,844 feet.

Wheeler County

Upham Gas Co.'s No. 3 fee (George), 12,000,000 feet of gas from 1,720-1,837 feet, total depth 1,837 feet.

WICHITA FALLS COMPLETIONS

Week Ending June 28

Archer County

Shappell Oil Co.'s No. 1 Kemp & Kempner, oil sand 1,803 feet, initial production 15 bbls., total depth 1,807 feet. E. J. Stump & Co.'s No. 1 Newell, dry and abandoned, total depth 1,780 feet. Burson & Long's No. 1 Dugan, dry and abandoned, total depth 1,552 feet. Consolidated Oil Co. of Texas' No. 2 Harmel, dry and abandoned; total depth 1,462 feet. Continental Oil Co.'s No. 1 Prideaux, dry and abandoned, total depth 967 feet. Fain & McGaha Oil Corp.'s No. 1 Portwood, dry and abandoned, total depth 1,412 feet. Looney & Hutcheson's No. 1 Dickey, dry and abandoned, total depth 1,402 feet. J. H. Massie's No. 1 Echols, oil sand 1,346 feet, initial production 96 bbls., total depth 1,349 feet. Maxson & Panhandle's No. 1 Graham, top of pay 1,106 feet, initial production 10 bbls., total depth 1,117 feet. A. Minnich's No. 1 Carington, oil sand 1,105 feet, initial production 4 bbls., total depth 1,114 feet. Reno Oil Co.'s No. 1 Cave and others, dry and abandoned, total depth 1,401 feet. Silk & Chenault's No. 1 Graham, dry and abandoned, total depth 1,258 feet. Vigil Oil & Gas Co.'s No. 10 Harmel, oil sand at 1,416 feet, shot with 10 quarts, initial production 26 bbls., total depth 1,431 feet.

Baylor County

Consolidated Oil Co. and others' No. 19 Portwood, top of pay 1,374 feet, initial production 50 bbls. oil and 15 bbls. water, total depth 1,374 feet.

Cooke County

G. C. Lanier's No. 1 Ball, temporarily abandoned. United Production Co.'s No. 1 Dennis, dry and abandoned, total depth 1,756 feet.

Jack County

Boller and others' No. 5 Raley, top of pay 3,665 feet, initial production 75 bbls., total depth 3,080 feet. F. H. E. Oil Co.'s No. 5 Liffel, top of pay 3,202 feet, initial production 100 bbls., total depth 3,207 feet. Republic Production Co.'s No. 4 Ezell, top of pay 3,084 feet, initial production 148 bbls., total depth 3,101 feet.

Montague County

Bridwell Oil Co.'s No. 6 Dennis, oil sand 1,685 feet, initial production 92 bbls., total depth 1,717 feet. Bridwell Oil Co.'s No. 1 Wilton and others, dry and abandoned, total depth 2,152 feet. The Texas Company's No. 2 Cunningham and others, oil sand at 913 feet, initial production 36 bbls., total depth 932 feet.

NORTH TEXAS PRODUCTION

Week Ending June 28

Panhandle district—	Bbls.
Carson County	8,155
Hutchinson County	23,280
Gray County	75,835
Moore County	350
Potter County	0
Wheeler County	760
Total this week	108,380
Total last week	101,690
Increase	6,690
Wichita Falls district—	
Archer County	19,050
Baylor County	1,300
Clay County	765
Cooke County	3,515
Foard County	192
Jack County	3,485
Haskell County	60
Montague County	6,830
Throckmorton County	1,070
Wilbarger County	24,045
Wichita County	25,295
Young County	22,110
Total this week	107,717
Total last week	107,629
Increase	88
Ranger district—	
Brown County	6,645
Callahan County	3,840
Coleman County	3,610
Comanche County	380
Palo Pinto County	630
Eastland County	5,545
Shackelford County	5,770
Stephens County	5,805
Total this week	32,225
Total last week	33,718
Decrease	1,493

Wichita County

Arkansas Fuel Oil Co.'s No. 35 Kemp & Kempner, oil sand 1,753 feet, initial production 64 bbls.; total depth 1,770 feet. Bridwell & Mayfield's No. 5 Womack, oil sand 1,599 and 1,670 feet; initial production 20 bbls.; total depth 1,675 feet. T. F. Hunter's No. 3 Waggoner, oil sand 1,671 feet; initial production 55 bbls.; total depth 1,684 feet. Lambert & Trout's No. 4 Overby, oil sand 1,769 feet; initial production 80 bbls.; total depth 1,778 feet. The Texas Company's No. 383 Waggoner, dry and abandoned; total depth 2,250 feet. The Texas Company's No. 384 Waggoner, oil sand 1,513 feet; initial production 100 bbls.; total depth 1,519 feet.

Wilbarger County

Davis Oil Corp.'s No. 9 Waggoner, top of pay 2,663 feet; initial production 90

(Continued on Page 151)

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending June 30

CARSON COUNTY

Company, well, farm, name, section and block—	Remarks—
Danciger O. & R. Co.'s No. 1 Block, 330 ft. N and E lines, Sec. 112, Blk. 4, I.&G.N. Sur.	Drlg. 2,995 ft.
Cockrell-McIlroy Oil Co.'s No. 1 Simms, 330 ft. S and E, E 140 ac., N 160 ac., S 320 ac., Sec. 11, Blk. 7, I.&G.N. Sur.	43,000,000 ft. gas 3,110-35 ft; 1,200 ft. oil in hole; T.P. 3,275 ft; T.D. 3,460 ft; P.B. to shoot; 400 ft. oil in hole.
Empire G. & F. Co.'s No. 1 Archer-B, 330 ft. N and E, SW cor. SW, Sec. 139, Blk. 3, I.&G.N.R.R. Sur.	Location.
Empire G. & F. Co.'s No. 2 Fields, 990 ft. N and W, Sec. 13, Blk. 4, L&G.N. Sur.	T.D. 3,267 ft; T.P. 3,228 and 3,246 ft; I.P. 234 bbls. first 24 hrs. and 152 bbls. second 24 hrs.
Gibson Oil Corp.'s No. 1 Moore, 990 ft. N, 330 ft. E, N½, SE, Sec. 20, Blk. 7, I.&G.N. Sur.	Drlg. 1,950 ft.
Reiger & Steckoll's No. 1 Martin, 330 ft. N and W, SW, Sec. 90, Blk. 7, I.&G.N. Sur.	Drlg. 1,055 ft.
Shamrock O. & G. Co.'s No. 1 Thompson, 330 ft. S and W lines, E 80 ac., NE, Sec. 5, Blk. 7, L&G.N. Sur.	17,000,000 ft. gas 2,755 ft; drlg. 3,200 ft; T.P. 3,171 ft; swbd. 16 bbls. on test.
Shell Pet. Corp.'s No. 1 Percival, 330 ft. N and E, SE, Sec. 199, Blk. 3, I.&G.N. Sur.	Set 6-in. csg; T.D. 3,135 ft.
Suloch Oil Co.'s No. 1 Bost, 990 ft. S, 330 ft. E, SW, Sec. 1, Blk. S.&F.	T.D. 2,960 ft.
Sweeney et al's No. 1 Locke, 164 ft. N and W, 40-ac. tr. along R.R. in Sec. 57, Blk. 7, I.&G.N. Sur.	Drlg. 840 ft.
Texas Interstate P. L. Co.'s No. 1 Burnett, 1,320 ft. N, 660 ft. W, of W 480 ac., Sec. 99, Blk. 5, I.&G.N. Sur.	Drlg. 2,515 ft.
Texas Interstate P. L. Co.'s No. 2 Burnett, C NE, Sec. 77, Blk. 5, I.&G.N. Sur.	Building rig.

CHILDRESS COUNTY

Continental Oil Co. and Sun Oil Co.'s No. 1 Johnson, 660 ft. NE, Sec. 580, Blk. H, W.&N.W. Sur.	S.D. 3,470 ft.
C. L. Sloane et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft.

(Continued on Page 110)

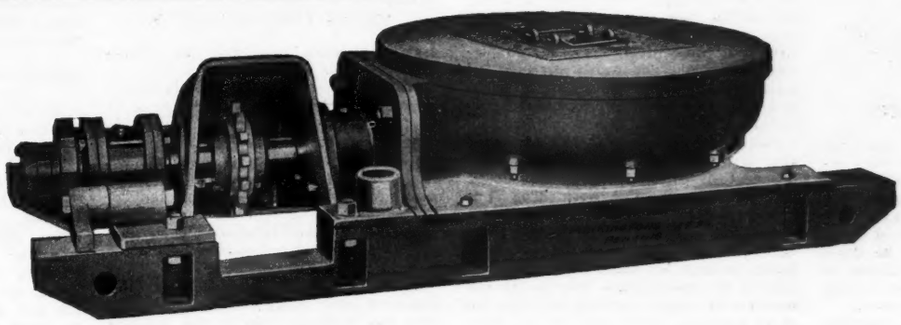
DRILLED 19,800 FEET WITHOUT PUTTING WRENCH ON ROTARY

One Oklahoma drilling contractor writes that he has drilled THREE 6600-foot wells with 6″ drill pipe, without putting a wrench on his GUMBO BUSTER OIL BATH ROTARY.

TESTED IN OKLAHOMA FIELDS AND FOUND OUTSTANDING

The year's severe test in the Oklahoma Fields has earned for the GUMBO BUSTER OIL BATH ROTARY the reputation for being the outstanding example of advance in practical design in rotary drilling equipment. Its satisfactory and economical service under the severe drilling conditions existing in this field has proven its worth to oil operators and drillers everywhere.

GUMBO BUSTER
Oil Bath
ROTARY



RUNS IN A BATH OF OIL

The new oil bath design assures constant lubrication of gears and cones and prevents entrance of all foreign matter to these parts. The engineering-minded, practical oil man is high in praise of this principle.

RUNS SMOOTH IN ROUGH DRILLING

A good driller knows what it means to have a good rotary, especially when the drilling is rough. What better proof of a good rotary than the year's test of the GUMBO BUSTER OIL BATH ROTARY in the oil fields of Oklahoma. The verdict is: No "whipping" in rough drilling.

WHY

1. All steel rotary, including skids.
2. Inside hold-down, constantly lubricated, forms a radial bearing for table, holding it in exact concentric rotation. In rough drilling this bearing takes the tooth load of pinion on table gear. These features afford even, smooth, quiet rotation.
3. Both pinion boxes are in one casting and are not adjustable, assuring proper alignment at all times of the four Hyatt Roller Bearings (two in each box) and proper engagement of teeth on ring gear.
4. 4¾″ pinion shaft runs in four Hyatt Roller Bearings.
5. Gear teeth are forged, cut, hardened and shrunk on master wheel.
6. Convenient locking device on end of pinion shaft.
7. Flexibility to adjust itself obviates twisting off drill pipe should the bit hang on rock or ball up in gumbo and stop.

Republic Supply Company

OIL AND GAS WELL SUPPLIES
Cable and Rotary Tools

GENERAL OFFICES: HOUSTON, TEXAS

Pipe Line Construction News

Contract Awarded For Susquehanna's Long Gasoline Line

The Susquehanna Pipe Line Co., subsidiary of Sun Oil Co., awarded June 26 to the Macpherson Construction Co., Magnolia Building, Dallas, contract for construction of gasoline pipe line system, approximately 500 miles in length, running from Marcus Hook, on the Delaware River southwest of Philadelphia, through southern Pennsylvania and northern Ohio to Columbia, Harrisburg, Chambersburg and Pittsburgh, Pa., Youngstown, Akron and Cleveland, Ohio, with branch north in eastern Pennsylvania to Reading and Allenton and the steel works in that district.

This line will be welded, of 8-inch and 6-inch diameter, having a capacity of 15,000 bbls. of gasoline daily, and a number of equipment camps and gangs will be installed and construction started immediately, first shipments of pipe arriving early in July.

The Macpherson Construction Co. has specialized in oil and gas pipe line construction only for over 20 years.

KANSAS PERMITS ASKED

TOPEKA, Kans., June 28.—The Continental Construction Corp., Kansas City, Mo., has asked the Kansas Public Service Commission for permission to construct a 24-inch gas pipe line from northwest Texas to Chicago across this State. The proposed routing across the State would be from a point near Meade in southwestern Kansas to a point near Washington, in northeastern Kansas.

The Phillips Pipe Line Co., Bartlesville, Okla., was granted permission by the Kansas Public Service Commission to construct and operate across the State its proposed gasoline pipe line from a point near Borger, Tex., through Oklahoma, Kansas and Missouri to a point near East St. Louis, Ill.

NEW PRAIRIE SUBSIDIARY

INDEPENDENCE, Kans., June 28.—Southwestern Development Co., newly organized subsidiary of Producers & Refiners Corp., which is a subsidiary of Prairie Oil & Gas Co., owns one-eighth interest in the $100,000,000 gas line from Texas fields to Chicago. Nelson K. Moody is president of Southwestern Development Co., and he, with W. S. Fitzpatrick, Dana H. Kelsey and John Fertig, of this city, and Albert R. Jones, Frank E. Jones and E. W. Goebel, of Kansas City, are directors.

Other companies interested in the line are Cities Service Co., the Insull interests, Standard Oil of New Jersey, The Texas Company, Phillips Petroleum Co., Skelly Oil Co. and Columbian Carbon Co.

GAS LINE FROM CANADA?

CHATHAM, Ontario, June 30.—Frank P. Book of Detroit recently arrived in Calgary to confer with officials of the Range Oil & Gas Co. in regard to a project to export natural gas from Alberta to United States points. While details of the project have not been made public, it is understood that it contemplates linking the Alberta fields with a network of natural gas pipe lines in the northwestern states. Consolidation of certain pipe line systems in Montana and Minnesota is contemplated.

The principals behind the project include a group of Minnesota bankers, Mr. Book and his associates and a Seattle financial group represented by E. J. Hubbard.

EXPECT IMPROVEMENT IN STEEL BUSINESS

By B. E. V. Luty

PITTSBURGH, Pa., June 30.—The steel trade generally is dull, line pipe being the only exception. Demand for standard or merchant pipe, which decreased 10 per cent from 1926 to 1929, has had a sharp decrease from 1929, 20 per cent or more. Boiler tube demand is quite moderate, as is demand for mechanical tubing.

With half the year past, it is particularly fitting to take a retrospect. Dividing the time since January 1 into halves, three important items, freight car loadings, steel production and automobile production all show approximately normal relationship. There has been neither progressive improvement since the first of the year nor a fresh backset. The year is simply an off year, just about as much off one time as another.

Now it is predicted on all hands that there will soon be improvement. These predictions range from late August to later in the year. Improvement in late August or in September is easy to predict and would not prove anything, as usually there is seasonal improvement and the lines mentioned have thus far followed their usual seasonal swing.

Steel ingot production decreased further last week, averaging say 62 to 63 per cent of capacity, against about 65 per cent the preceding week. The June average will probably be reported officially at around 66 per cent. July should be lower still, but probably not much lower, perhaps not under 60 per cent. In normal or typical years July is the low month with August marking the beginning of an increase. Years that did not make this showing proved to be years in which conditions were poorer in the second half than the first half, as to the general state of trade.

Finished steel products may be divided into three categories as to their price situation. First, standard rails, tin plate and pipe, which have quite steady prices, distinctly profitable. Second, wire products, sheets and strips, which after various declines are steady at prices that are scarcely remunerative at all. Third, bars, shapes and plates, which would be quite profitable if prices now quoted as representing "the market" were obtained or closely approached in all cases. These prices, however, have for a long time been irregularly shaded, sometimes deeply, and it is readily admitted that the prices will not hold, that some time there will have to be a readjustment, which has not been feasible thus far because there was no definite amount of shading to guide some large interest, like the Steel corporation, in an effort to stabilize.

All producers of line pipe, 10-inch and upward, are fully booked for quite a while, but just how far cannot be determined as the output of new units has to be determined by experience. The new Gary mill, to make seamless up to 24-inch, is working well but is not yet up to eventual capacity. Lorain is making larger tubing than a few weeks ago but is not yet up to 24-inch. New electric welding departments at McKeesport and Youngstown are expected in next month but their rate of output in the early months cannot be determined in advance.

VAN POOL LINE

Welding of Pure Oil Pipe Line Co.'s 10-inch trunk pipe line from Van Field, Van Zandt County, Texas, to the Smith's Bluff refinery and tanker terminal of Pure Oil Co., a distance of 210 miles, is ahead of schedule and completion is likely within a few days.

Pipe Line Activity Stimulates Demand For Big Wall Maps

Intense activity in the pipe line industry has created an especially large demand for The Oil and Gas Journal's large wall maps showing all oil and natural gas trunk pipe lines in the United States. A limited number of these maps, printed on extra heavy bond paper, are still available at the cost price of 50 cents, including postage. These maps will not be reprinted, so companies and individuals desiring additional copies are requested to order their requirements as quickly as possible.

Recent announcements regarding the construction of long oil, natural gas and gasoline pipe lines make the maps especially valuable at this time. The natural gas map, in addition to showing names of companies owning the lines, gives the sizes of the lines.

MOUNT PLEASANT LINE

MUSKEGON, Mich., June 30.—About 15 miles of the Pure Oil Co.'s new 6-inch line from its storage tank farm in Mount Pleasant Field to the company docks at Bay City has been laid and work is progressing rapidly on the remaining 30 miles. As soon as the line is completed crude from the Mount Pleasant Field will be loaded directly into oil tankers and shipped by boat to the Imperial refineries at Sarnia, Ontario, Canada. This will eliminate the railroad haul from the field to Bay City.

With the completion of the new Pure line very little crude oil will be moving from any Michigan field by rail. All that is not sold direct to refineries in the Muskegon Field is shipped by boat to the Standard Oil Co. of Indiana refineries at Whiting, Ind.

The first cargo of about 16,000 bbls. of gas oil also will be shipped from Muskegon in the near future by the Old Dutch Refining Co., operators of the largest independent plant in Muskegon. The Allied Oil Co., of Cleveland, will transport the oil out of the Muskegon Harbor.

SOUTHERN NATURAL BEGINS LINE

JACKSON, Miss., June 28.—Actual laying of pipe for Southern Natural Gas Corp.'s extension of the Monroe-Atlanta main natural gas trunk line at Pickens, Miss., through Jackson and Hattiesburg, Miss., to Mobile, Ala., is under way. Pipe for a good part of the extension is already strung along the right of way toward Mobile, consisting first of 18-inch followed by 16-inch and 14-inch.

Two 10-inch branch lines are also being laid, one to Gulfport and the other to Moss Point, Miss. An extension from Hattiesburg to Bogalusa, La., is practically assured also, as Bogalusa Paper Co. contracted for 6,000,000 to 8,000,000 feet daily at 12½ cents per 1,000 covering a period of 14 years. Another extension out of Jackson is contemplated down the main line of the Illinois Central toward McComb, Miss.

NORTH DAKOTA LINE

CASPER, Wyo., June 28.—Word from the Neuman Transit Co. at Belfield, N. Dak., is to the effect that 70 miles of the 12-inch line had been strung, and that the work of stringing would be completed within the next 30 days, weather permitting. Hope Engineering Co. has some 50 miles of the Bismarck line underground, and is bringing the gas up to each community terminus as the work proceeds.

TO LAY NEW GAS LINE, REFUGIO TO HOUSTON

HOUSTON, Tex., June 30.—The Houston Gulf Pipe Line Co., through whose line the Houston Gas & Fuel Co. procures its natural gas for distribution, is preparing to lay an additional 100 miles of 16-inch gas line between Houston and the Refugio gas field, which now supplies Houston.

The new line will be built in two sections, there being approximately 50 miles of the line already built from the Refugio Field this way, to the vicinity of Victoria, and another 50 miles from Pierce Junction toward Victoria, terminating in the neighborhood of El Campo.

Despite the fact that there will be a gap between Victoria and El Campo, the design of the hook-up is such that the company will be able to bring considerably more gas into Houston to supply domestic and industrial consumers, it was said at the company's office.

No estimate of the cost of this additional installation was made at headquarters of the firm. Work on the new pipe line will commence at once, it was said.

BEGIN WORK ON QUINTON LINE

With four crews working, one at the Quinton end, one at the Tulsa end and two at river crossings, the laying of the new high-pressure pipe line of Southwestern Natural Gas Co., subsidiary of Appalachian Gas Corp., has been commenced, it was announced by Harry Mann, vice president. The new pipe line is a "Y" line, one leg passing through Sapulpa and having its terminus in Tulsa, and the other running to Boynton and Muskogee, with a branch line to Sand Springs. Contracts call for completion of the Muskogee branch by September 1, and the entire line a month later.

On completion of the line, Southwestern Natural Gas will sell natural gas under long term contracts to companies engaged in its distribution for domestic and industrial purposes in Muskogee, Sapulpa and Boynton, and will also furnish natural gas directly to industrial consumers in Tulsa.

SHERIDAN GAS LINE

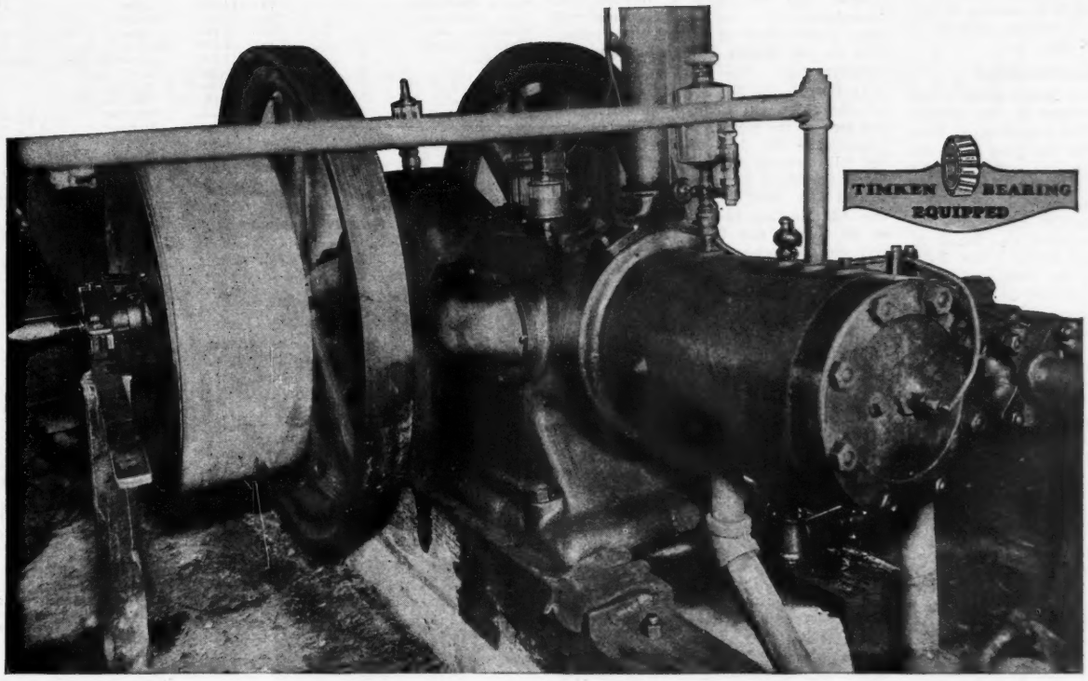
Minnesota Northern Power Co., which recently took over the distributing system of the Sheridan Gas Co., has announced that pipe is ordered for the line, survey is made for the right of way, and actual construction is scheduled to start about July 15. The line will be laid by the Hope Engineering Co. of Mount Vernon, Ohio, and some 300 to 400 men will be employed on the work. In Sheridan the 3-inch and 4-inch distributing lines will be replaced by 8 and 10-inch lines where heavier demand requires it. This is to be done during August. Completion of the line is set at September 30.

REPLACING LOST SOLDIER LINE

The Producers & Refiners Corp. is replacing the 8-inch pipe line which extends from Lost Soldier Field to its refinery at Parco, Wyo., across Separation Flats. Sufficient crude has been stored to insure a supply for the plant until the pipe line work is completed.

OREGON BASIN BILL

WASHINGTON, D. C., June 28.—The Senate bill to authorize the Secretary of the Interior to grant oil and gas permits and leases on 800 acres of land in Oregon Basin, Wyoming, to the Oregon Basin Oil & Gas Co. has been passed by the House and sent to the President.



For Twenty-Four Hour Service

Twenty-four hour duty for any oil field equipment means twenty-four of the hardest hours any machine is expected to stand. And, as the whole, so the parts; the bearings on such equipment are subjected to a test that makes "survival of the fittest" more than any figure of speech.

Since alibis are not popular in such service, The Petroleum Engineering Corporation of Bradford, Pa., has equipped its 20 and 25 H.P. gas engines with Timken Bearings. They are depended upon to hold the crank-shaft in alignment in spite of fluctuating pressure loads and the grind of continuous duty. In the outboard pillow blocks that support the pulley shaft they again preserve alignment, no matter what the loading or leveling conditions may be.

In short, twenty-four hour service is assured by the combination that spells endurance indefinitely prolonged, Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken-made steel.

THE TIMKEN ROLLER BEARING COMPANY
C A N T O N, O H I O

TIMKEN *Tapered Roller* **BEARINGS**

OKLAHOMA FIELDS

(Continued from Page 42)

21-6-6, had 400 feet of oil in the hole from the Simpson sand at 3,620-76 feet. Tankage was being erected before making a production test. The deepest test in the area is Magnolia Petroleum Co.'s No. 1 Deavers, SW cor. SE NW Section 29-6-6. It was drilling in a caving hole at a total depth of 4,178 feet.

Wanette Most Promising

The Wanette-West Asher area is the most promising territory in the general Seminole district. The Consolidated Pipe Line Co. is entering the pool with an extension of its pipe line system. Twin State Oil Co.'s No. 1 in the NE SE Section 22-6-3, Pottawatomie County, a new producer came in making 3,065 bbls. the first 24 hours. The sand was found at 3,500-21 feet. It was drilled 5 feet deeper the last part of the week and made 1,350 bbls. Transcontinental Oil Co.'s No. 1 Miller, SE cor. NE NE Section 22-6-3, had a show of oil at 3,484-87 feet, and will make a production test. A southward extension of the pool is made possible by a wildcat test being drilled by Westheimer & Newstadt in the NE cor. SE SW Section 27-6-3, which had a showing of oil in sand at 3,595-3,605 feet, and was coring at 3,617-23 feet. The test is a mile south of production in the pool and may open considerable territory for development.

J. A. Hull Co. and Phoenix Oil Co. completed the eighth well in the Wanette Pool during the week. It was No. 1 Swan, NE cor. SE SE Section 22-6-3, flowing 476 bbls. in 12 hours, from sand at 3,484-95 feet. It is expected to be drilled deeper. The field has 22 operations under way, including 10 tests drilling in Section 23-6-3, 5 in Section 22-6-3, 3 in Section 14-6-3, 2 in Sections 15-6-3, and 1 each in Sections 27 and 36-6-3, Pottawatomie County.

Leasing in Major County

Major County in the northwestern part of Oklahoma has been active in the leasing and royalty play. During the week 129 leases were recorded at the county seat. The companies making the purchases include the Gypsy Oil Co., Twin State Oil Co., Independent Oil & Gas Co., Sinclair Oil & Gas Co. and Indian Territory Illuminating Oil Co. They have checkerboarded the area included in 20-9w, 20-10w, 21-9w, 21-10w, 22-9w, and 22-10w, in the eastern part of the county. Some of the area has been core drilled.

New Pay in Caddo County

A new pay sand horizon has been discovered in the Cement Field in Caddo County. Mid-Kansas Oil Co. and Ramsey Petroleum Corp.'s No. 9 Wade, SW cor. SE SW, Section 2-5-9w, swabbed 13 bbls. an hour and made 117 bbls. of oil before bailing to the bottom. The cable tools are being rigged up and the well will be drilled deeper. The oil was found in broken sand at 4,067-92 feet. The production was found in a new horizon for the east side of the Cement Pool. On the west side of the pool Vaughn & Rush's No. 1 Gregory, SW cor. NE SW, Section 31-6-9w, had sand at 3,282-90 feet, where it made 150 bbls. The total depth of the well was 3,304 feet.

Southern Tests

A wildcat test 6 miles southeast of Duncan was bailing with a showing of oil in Stephens County. The operators in the area are watching the Gypsy Oil Co., Wirt Franklin Petroleum Corp. and Twin State Oil Co.'s No. 1 McPhail, NW cor. SE, Section 1-2s-7w, which was bailing at 3,948-63 feet, with a showing of oil. The total depth of the hole is 4,529 feet and has been plugged back. The operators plan to test another horizon at 4,-130-48 feet, if the shallower sand does not make a commercial well.

In the Comanche area several tests are drilling around the new well of Pace and others' in Section 21-2s-7w, Stephens County, which was recently completed for 500 bbls.

Pierce & Brown's No. 1 Wilkerson, SW cor. SE, Section 27-1s-8w, Stephens County, made 6,000,000 feet of gas from a new sand at 1,942-65 feet.

A wildcat about 2½ miles northwest of production in the Madill Pool in Marshall County, has a showing of oil and is landing casing to make a production test. It is Longnecker and others' No. 1 Park, NW cor. NE NW, Section 5-5s-5e, and has sand at 647-55 feet. Completion of a well in this area will open a new field or extend the production in the Madill Pool a considerable distance.

In the Madill Pool in Marshall County, the Bilbo Oil Corp. is preparing to put two of its recent completions on the pump. The No. 11 Taliaferro, NE cor. SE SE, Section 14-5s-5, had a showing of oil at 530-50 feet, and the total depth is 562 feet. The No. 12 Taliaferro, NE cor. SE, Section 14-5s-5e, was estimated at 40 bbls. a day from sand at 544-69 feet. Several other tests were drilling in the area. Development work has slowed down during the week in the district.

Five Completions in Beebe

The Beebe area in Pontotoc County had five completions during the week. One was a failure and four were oil wells. Benedum & Trees' No. 1 Burke, NE cor. NW NW Section 33-5-5, had water in the Wilcox sand at 2,770-2,860 feet, and was abandoned. Their No. 1 Starritt, in Section 28-5-5, had Sylvan shale at 2,404-06 feet, where it swabbed 70 bbls. a day. Their No. 1 P. A. Norris, NE cor. NW SW Section 30-5-5, was shot with 200 quarts at a total depth of 2,565 feet, where it swabbed 100 bbls. Dixie Oil Co.'s No. 2 Roper, SE cor. NW Section 32-5-5, had Viola lime at 2,364 feet, Simpson at 2,502-11 feet, and swabbed 120 bbls. Brydia and others' No. 1 Burke in Section 32-5-5 mad Sylvan shale at 2,563 feet, and the total depth was 2,601 feet. It was plugged back to 1,765-1,820 feet and pumped 15 bbls. a day.

South of Wewoka in Hughes County, Magnolia Petroleum Co.'s No. 1 Hayes, SW cor. NW Section 16-7-8, had been completed for 12,500,000 feet of gas, with a rock pressure of 1,000 pounds, from a total depth of 3,925 feet. Same company's No. 1 Dale, in Section 16-7-8, was drilling cement plugs at 3,915 feet.

Near the town of Wewoka the Deep Rock Oil Corp.'s No. 1 Johnson, SE cor. NW NE Section 30-8-8, just south of the city limits, swabbed 100 bbls. from sand at 3,237-43 feet.

South Earlsboro

South Earlsboro production was increased when the Eason Oil Co.'s No. 1 Anderson, NE cor. NW NE Section 22-9-5, was given a shot in the Wilcox sand at a total depth of 4,260 feet, where it made 2,230 bbls.

Amerada Petroleum Corp. and Dixie Oil Co.'s No. 5 Grounds, SE cor. NW NW Section 23-9-5, made 6,870 bbls. in 24 hours from Wilcox sand at a total depth of 4,210 feet. No. 1 Grounds made 3,080 bbls., pinched, and No. 2 Grounds made 4,730 bbls., pinched. Same company's No. 5 Edwards, SW cor. NE NE Section 22-9-5, made 2,176 bbls.

Western Deep Tests

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Section 14-26-24w, Harper County, has a fishing job that has delayed operations for the last month. After rigging up standard tools at 8,580 feet, the crew made a few feet of new hole and lost the tools. Same company's No. 1 Showwalter, C SW SW Section 33-27-16w, Woods County, was rigging up rotary tools at 6,790 feet. Sinclair Oil & Gas Co. and Deep Rock Oil Corp.'s No. 1 Crowell, C NW NE Section 23-28-16w, Woods County, has landed 6-inch casing at 6,150 feet, and drilled out the cement plugs where it filled up 5,000 feet with water.

Greater Seminole Production

Production in the Greater Seminole area in the week ending June 25 continued at about the same levels as in the previous two weeks. The total daily average production for the area was 300,-107 bbls. The Seminole Field averaged 214,652 bbls. from 1,885 wells. The daily average gauges from the different pools in the Greater Seminole area were as follows:

Pool—	Wells	Bbls.
Little River	372	33,347
East Little River	82	16,520
Carr City	57	8,616
Maud	138	4,623
Mission	104	12,686
Bowlegs	280	20,539
Earlsboro	281	30,166
South Earlsboro	23	14,461
East Earlsboro	155	37,963
Seminole City	266	21,460
East Seminole	33	2,846
Searight	84	11,425
Allen	264	19,281
Asher	26	1,546
Wanette	7	5,022
Konawa	78	19,643
St. Louis	486	31,507
Sasakwa	53	8,456
Total	2,799	300,107

Greater Seminole Oil Shipments

The total pipe line and tank car shipments from the Greater Seminole area were 269,312 bbls., a decline of about 5,000 bbls. a day for the week ending June 25. The daily average shipments by companies were as follows:

Company—	Seminole (bbls.)	Asher, Pearson, St. Louis (bbls.)	Konawa (bbls.)
Barnsdall	3,017	....	....
Champlin	4,981	....	458
Continental	251	....	....
Consolidated	438	271	....
Cosden	6,474	200	1,510
Deep Rock	4,986	785	....
Empire	2,434	....	....
Gulf	24,940	2,725	714
Independent	1,253	....	....
Magnolia	12,353	8,060	....
Oklahoma	31,397	....	557
Prairie	17,955	6,033	6,511
Prod. & Ref.	2,355	....	....
Pure	4,841	....	....
Shell	13,285	2,953	5,035
Sinclair	42,348	12,200	2,126
Texas	15,162	55	2,659
Tidal	15,878	3,792	....
White Oak	1,530	....	....
Total	205,878	37,074	19,570
Tank cars	6,850		
Grand total	212,728		

Oklahoma City's Shut-In Production

The initial production of the shut-in wells in the Oklahoma City Pool that have been allowed to produce for 24 hours or less as of June 28, and are now shut in for the proration period, was 547,977 bbls. The initial production and the approximate dates each well will be opened for its regular producing period follows:

I. T. I. O.:			
Sudik	*1	[1]30,000	.....
Warden	*1	6,758	7- 1-30
Werner-Farley	*3	[2]2,096	7- 2-30
Werner-Speegle	*3	[2]2,355	7- 2-30
H. W. Jones	*1	[13]13,129	7- 4-30
Borden	*1	[2]2,080	7- 5-30
E. Farley	*1	[5]104	7- 5-30
Salsman	*2	4,205	7- 8-30
C. Brokaw	*4	[8]435	7- 6-30
Ferndale Comm.	*2	[4]4,142	7- 7-30
N. Emerson	*5	[102]5,330	7-12-30
H. W. Jones	*2	[12]2,290	7-13-30
E. Trosper	*2	[15]5,000	7-13-30
B. Johnson	*4	[2]2,334	7-13-30
N. Emerson	*8	[24]4,052	7-14-30
N. Emerson	*10	[8]55	7-15-30
C. E. Trosper	*1	20,016	7-16-30
Salsman	3	942	7- 7-30
Salsman	1	[35]304	7- 8-30
Precure	1	[10]900	7- 9-30
L. Jones	3	10,184	5-29-30
H. W. Jones	2	24,586	7- 8-30
Trosper Hughes	*1	[3]000	8- 7-30
Jones Community	*2	17,164	8- 5-30
Jones Community	3	[10]000	7- 9-30
A. Brokaw	4	[32]	8- 6-30
N. Emerson	*7	1,687	8- 5-30
C. Brokaw	3	11,303	8- 4-30
Thelmer	*3	[210]540	8- 7-30
Precure	*1	[18]385	8- 7-30
Trosper	*11	4,285	8- 3-30
N. Emerson	*9	3,274	8- 7-30
L. Jones	*7	2,463	8- 7-30
M. Uncil	*2	2,050	8- 4-30
Salsman	*4	[30]225	8-14-30
M. Fuzzell	3	[4]000	8-21-30
G. Button	5	[9]000	8-21-30
Trosper Park	*6	[5]000	8-21-30
E. Trosper	*1	[16]271	8-20-30
Jones	*10	[2]604	8-19-30
L. Farley	4	7,395	8-18-30
Mary Sudik	*4	[35]513	8-27-30
Canfield Button	3	[6]494	8-28-30
School Land	*2	[34]482	8-27-30
School Land	*1	[4]734	8-27-30
W. Franklin:			
Thelmer	*3	16,690	8- 7-30
Lowery	*8	[10]000	8-20-30
Wright	*1	5,805	8-27-30
Cromwell:			
Trosper Park	*18	[1]902	7- 7-30
Trosper Park	16	[3]268	7- 8-30
Trosper Park	*17	17,953	8- 7-30
Trosper Park	*15	5,240	8-13-30
School Land 54	12	[12]000	8- 8-30
School Land 54	8	[10]000	8- 8-30
School Land 54	*3	4,420	8-13-30

(Continued on Next Page)

School Land 54	*4	[9]050	8-14-30
Sinclair:			
Vinci	*4	[22]385	7- 5-30
Kinter	10	115	8- 4-30
Vinci	*5	[25]730	8-14-30
Vinci	*8	[8]720	8-14-30
School Land 67	*2	6,770	8-14-30
School Land 54	7	[18]000	8-30-30
Coline:			
Olds	*9	[1]169	7- 7-30
Olds	*7	[17]819	7- 8-30
Warren	9	5,544	8- 8-30
Claur	1	[1]203	8- 1-30
Warren	8	9,398	8- 4-30
Olds	*10	[2]119	8- 2-30
Olds	*11	[11]284	8-15-30
Claur	6	[25]191	8-28-30
Olds	*7	[21]763	8-28-30
Slick:			
Hoopes	*5	[8]15	7- 6-30
Hoopes	*6	2,237	7- 8-30
Houghton	1	16,924	6-21-30
Bailey	1	10,358	6-18-30
Martin	1	[10]045	7- 9-30
Hoopes	*7	3,995	8- 1-30
Dunivan	*1	[13]482	8-15-30
Hoopes	*8	798	8-14-30
Carter	*1	[9]891	8-16-30
Townsend	*1	[4]798	8-16-30
Classen	*1	[21]711	8-29-30
Foote	*1	[10]000	8-27-30
Keenan & Co.:			
Cunningham	*2	[12]000	8-11-30
Skelly:			
Hoopes	*6	[8]41	7- 7-30
Hoopes	8	12,339	7-10-30
Mid-Texas:			
Community	*1	[13]000	8- 6-30
Tom Slick Oil Co.:			
Hoopes	*8	[20]572	8- 5-30
Hall & Briscoe:			
Holmes	*1	[9]743	7-31-30
Prairie:			
Hiddleston	9	[24]310	8-20-30
Jack Shaffer et al:			
Jones Community	1	2,345	8-21-30
Total	91	547,977	

*Wells producing from the Simpson sand. All others are producing from the Arbuckle lime.

[1]Estimated. [2]Thirteen hours. [3]Fifteen minutes. [4]Twelve hours. [5]Five hours. [6]Eighteen hours. [7]Seventeen hours. [8]Twenty and one-half hours. [9]Twenty-one hours. [11]Sixteen hours. [12]Twenty-three and one-half hours. [13]Eight and one-half hours. [14]Thirteen hours, fifty-five minutes. [15]Thirty minutes. [16]Eleven and one-half hours. [17]Sixteen hours. [18]Three hours. [19]Nineteen hours. [20]Fifteen and three-quarter hours. [21]Eighteen and one-half hours. [22]Six hours. [23]Twenty-two hours. [24]Fifteen and one-half hours.

These notations indicate the number of hours the wells produced on their initial production test.

Oklahoma City Oil Shipments

The total shipments from the Oklahoma City Pool were 732,130 bbls. for the week ending June 23. The average daily shipments were as follows:

Company—	Bbls.
Empire	21,583
I. T. I. O.	3,956
Magnolia	12,589
Oklahoma	18,479
Prairie	18,030
Sinclair	18,169
Shell	2,776
Tidal	7,570
Healdton	1,438
Total	104,590

Actual Production

The daily gauges from the Oklahoma City Pool for the last seven days ending June 30, showing the date, number of barrels produced each day, number of wells on production, and total number of wells completed each day, were as follows:

Date—	Bbls.	Wells prod.	Total completed
June 24	158,338	43	309
June 25	115,224	62	312
June 26	69,500	56	314
June 27	106,363	50	316
June 28	138,921	53	317
June 29	117,537	55	318
June 30	101,859	50	318

Caddo County

Noble & Olson made location for No. 4 Rowe, SW cor. SE NE, Section 36-6-10w. Magnolia Petroleum Co. is moving tools in for No. 8 Lindsay, NE cor. NW SE, Section 36-6-10w. The rig is up for No. 9 Lindsay, NW cor. NE SE, Section 36-6-10w. Bullock and others moved rig material in for No. 3 Rigney, NE cor. NW SE, Section 12-5-9w. Magnolia Petroleum Co.'s No. 4 Gregory, SE cor. NW SW, Section 31-6-9w, has been completed for 75 bbls. in sand 3,342-48 feet.

Comanche County

K-D Drilling Co.'s No. 1 Cox, NE cor. NW, Section 24-2-10w, is shut down at 640 feet. Voe Wright's No. 1 Indian, SE cor. SW, Section 29-2-9w, has been abandoned at 2,185 feet.

Cotton County

Garvin & Gant's No. 6 Patterson, NE cor. NW NW NW, Section 1-2s-10w, is rigging up. Wirt Franklin Petroleum Corp.'s No. 2 School, SW cor., Section 36-1s-10w, is swabbing 20 bbls. from sand 2,183-2,203 feet. Garvin & Gant's No. 5 Patterson, NW cor., Section 1-2s-10w

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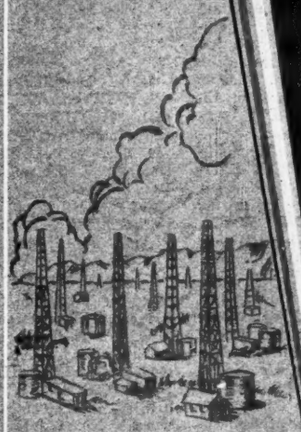

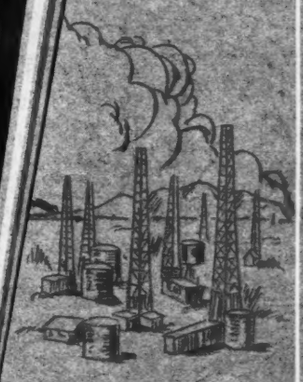

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is pumping 40 bbls. from sand 2,187-2,200 feet. Shasta Oil Co.'s No. 8 Cobb, NE cor. SE SE NE, Section 2-2s-10w, has been completed for 100 bbls. in sand 2,-163-94 feet.

Grady County

Carter Oil Co.'s No. 6 Carter-Kerans, SW cor. NE SE, Section 21-3-5w, has been abandoned at 7,041 feet.

Hughes County

Jarvis & Holm made location for No. 1 Buck, NE cor. NW SE, Section 17-7-8. Dubbs & Pryor's No. 1 Allen, SW cor. NW, Section 16-6-10, is drilling at 540 feet. McGee Brothers' No. 1 Penn, NW cor. SW SE, Section 10-9-10, has been abandoned at 3,300 feet. Iglehart and others' No. 1 Brooks "C," C SW SW, Section 28-9-10, is dry and abandoned at 3,355 feet.

Jefferson County

McGinley & Sigler's No. 1 Bushby, NE cor. NW SW, Section 17-7s-5w, is pumping 6 bbls. from sand 770-73 feet.

Washita County

H. S. Kaufman's No. 1 Nelson, NE cor., Section 1-8-14w, is drilling at 500 feet.

Osage County

National Refining Co. moved a machine in for No. 11, NE cor. SW SE, Section 22-27-11. Atlantic Oil Producing Co. made location for No. 7, SE cor. SW SW, Section 19-25-8. Oklahoma Natural Gas Corp.'s No. 1,793, NE cor. NW NW SE, Section 30-21-11, is rigging up. Clint Moore Estate and others moved a machine in for No. 3, SE cor. SW SE, Section 35-22-8. Indian Territory Illuminating Oil Co.'s No. 429, NE cor. SE, Section 6-26-12, has been deepened from 1,493 feet to 1,584 feet and completed for 2,250,000 feet of gas.

Pawnee County

John Byrnes' No. 9, CEL W half SE SW, Section 30-21-9, has been completed for 30 bbls. in Layton sand 1,074-1,120 feet. J. L. Donahue's No. 1 Vaugh, NW cor. NE NW, Section 27-23-4, has been completed for 12,000,000 feet of gas in Bartlesville sand 3,290-3,305 feet.

Pottawatomie County

Lippa and others made location for No. 1 Helmerich, NW cor. NE NW, Section 11-8-4. Pure Oil Co. moved the rig in for No. 1 Case, SW cor. SE SW, Section 14-6-3, West Asher Pool. Indian Territory Illuminating Oil Co. has the cellar dug for No. 4 Butler, NE cor. SW NW, Section 23-6-3. The Prairie Oil & Gas Co. made location for No. 2 Tomlin, NW cor., Section 23-6-3. Location has been made for No. 3 Tomlin, SE cor. NW NW, Section 23-6-3. No. 4 Tomlin is a location, NE cor. NW NW, Section 23-6-3. Location has also been made for No. 5 Tomlin, NW cor. NE NW, Section 23-6-3.

Carter County

C. Anderson has the rig up for No. 2 Eaves, NW cor. SW, Section 24-1s-3w. P. H. Lively and others' No. 1 Coffee, SW cor. NW NE, Section 25-4s-3w, is a rig under construction. E. S. Lamb and others' rig is up for No. 1 Worsham, SW cor. NW SW NE, Section 25-4s-3w. The Prairie Oil & Gas Co.'s No. 3 McCartney, NE cor. NW SE, Section 30-1s-3w, has been abandoned at 2,880 feet.

Creek County

National Refining Co. has a machine on the location for No. 8 Futrell, NW cor. NE SE, Section 1-19-9. Eliza Tim and others' No. 1-A Harty, NW cor. NE NE, Section 9-17-11, is spudding. C. A. Mechling's No. 1-A Daniel, NW cor. SE NE, Section 32-17-11, is drilling at 1,000 feet. H. Robbins and others' No. 10 Lewis, NE cor. SW NE, Section 35-16-13, is drilling at 300 feet. Sells & Matych's No. 1-A Bough, NW cor. SE NE, Section 22-19-9, has been completed for 35 bbls. in sand 1,662-74 feet. Curtis Oil Co. and Margay Oil Co.'s No. 1 Mooney, SW cor. NE, Section 27-16-10, made 2 bbls. in sand 2,475-86 feet. C. L. Freeland's No. 2 Strip, NW cor. SE NE, Section 36-15-7, has been completed for 35,000,000 feet of gas in sand 3,227-63 feet.

Lincoln County

Magnolia Petroleum Co.'s No. 4 Staubus, SW cor. NW SE, Section 8-14-4, Chandler Pool, has been abandoned at 5,111 feet. The Prairie Oil & Gas Co.'s No. 1 Wolfe, NW cor., Section 16-14-4, has been abandoned at 5,010 feet in Wilcox sand.

Latimer County

Midwestern Oil & Gas Co.'s No. 1 Jones, SE cor. NE SW, Section 1-6-22, is rigging up.

McIntosh County

N. J. Weible has a machine on the location for No. 1 Asbell, NE cor. SW SE SE, Section 35-12-17. T. C. Young and others' No. 1 Hardin, NW cor. NE, Section 3-12-15, has been abandoned at 2,460 feet. N. J. Weible's No. 1 J. Wolfe, NE cor. SW SW SE, Section 35-12-17, made 250,000 feet of gas from sand 708-54 feet. No. 2 J. Wolfe, NW cor. NE SW SE, Section 35-12-17, has been completed as a dry hole at 768 feet.

Marshall County

Fleming & Kimbrell moved a machine in for No. 7 Null, SE cor. SW NE NW, Section 24-5s-5. F. W. Merrick has a machine on the ground for No. 21 Null, NW cor. NE SE NW, Section 24-5s-5. Otto Reynolds' No. 2 Davis-Sullivan, SW cor. NW SE NW, Section 30-5s-6, is drilling at 100 feet. Max Westheimer's No. 6 Davis-Sullivan, NW cor. SW SE NW, Section 30-5s-6, is drilling at 240 feet. A. A. Akers' No. 1 Spicer, SW cor. SE SW, Section 33-5s-7, is drilling at 100 feet. Bilbo Oil Corp.'s No. 12 Taliferro, NE cor. NW SE SE, Section 14-5s-5, Madill Pool, has been completed for 30 bbls. in sand 545-69 feet. F. W. Merrick's No. 20 Null, SE cor. NE NW NW, Section 24-5s-5, made a 16-bbl. well in sands 640-52 feet and 688-97 feet. Max Westheimer's No. 5 Davis-Sullivan, NW cor. SW SE NW, Section 30-5s-6, is dry and abandoned at 779 feet.

Muskogee County

Taylor & Geiger's No. 2 Tucker, NW cor., Section 16-15-15, is spudding. A. T. Kreps and others' No. 1 Jackson, C SE SE, Section 19-15-17, is rigging. W. J. Metzger and others' No. 1 Berryhill, SW cor. NE NW, Section 1-14-18, is drilling at 250 feet. Mazda Oil Co.'s No. 7 Jackson, SW cor. SE NW, Section 8-13-16, is riging up. Midwestern Oil & Gas Co. has a machine on the location for No. 1 J. Lacey, C NW NE, Section 31-12-19. J. L. Selby's No. 8 Harrison, C SE SW, Section 35-15-15, has been completed for 5 bbls. in sand 1,571-86 feet. J. L. Haner's No. 8 M. Stedham, SE cor. NE NE SE, Section 8-15-18, has been completed for 180 bbls. in sand 893-909 feet. C. F. Finefield and others' No. 2 P. Rentie, SE cor. SW NE NW, Section 9-15-18, made a 40-bbl. well in sand 906-13 feet. J. L. Haners' No. 7 M. Stedham, CEL W half SW SW, Section 9-15-18, is dry and abandoned at 1,090 feet. J. R. Parks' No. 1 Roberts, NW cor. SW NW SE, Section 15-15-18, has been completed for 2,381,760 feet of gas in sand 966-1,012 feet. E. A. Hollis and others' No. 1 Lowe, SE cor. NE SW, Section 17-15-18, made 1,860,690 feet of gas in sand 1,226-31 feet. E. Mills and others' No. 1 Hewitt, SW cor. NW SE, Section 17-15-18, made 4,552,860 feet of gas in sand 1,219-23 feet. C. E. Creager, trustee's No. 1 Muskogee Townsite, Block 331, SW cor. NE NW, Section 35-15-18, is fishing at 700 feet. William La Pierre's No. 1-A R. Johnson, SW cor. NW SW NE, Section 2-14-19, is a dry hole at 200 feet. Midwestern Oil & Gas Co.'s No. 1 M. Drew, C SE SW, Section 30-12-19, has been completed for 1,108,800 feet of gas in sand 590-601 feet.

Okfuskee County

Sunray Oil Co. has the rig up for No. 3-A W. Dindy, CEL SE NW, Section 31-11-11. Fern Oil & Gas Co.'s No. 3 Turner, SE cor., Section 24-11-10, is dry and abandoned at 2,338 feet.

Okmulgee County

Jess Rebold's No. 3 A. McGilbray, SE cor. NE, Section 27-13-13, is rigging up. D. Morrow and others moved a machine in for No. 1-A L. West, NE cor. SE, Section 26-12-12. McBrayer and others' No. 1 D. Tucker, SE cor. SW NW, Section 9-15-14, has been completed for 2,-000,000 feet of gas in sand 1,818-25 feet. A. W. Cline's No. 8 Harrison, CEL NE SW, Section 19-15-14, is making 15 bbls. from sand 1,715-26 feet. Gray Oil Co.'s No. 4 Derrisaw, CEL SE SE, Section 14-14-12, is dry and abandoned at 2,585 feet. Jordan and others' No. 1 Gooden, SE cor. NW SE, Section 28-12-14, has been completed for 500,000 feet of gas in sand 660-92 feet.

Payne County

Mote & Wheeler made location for No. 1 Hermanstofer, NE cor. NW NW, Section 9-17-5. Deep Rock Oil Corp.'s No. 1-A Dawes, NW cor., Section 21-19-5, has been completed for 190 bbls. in Wilcox sand 3,778-93 feet.

Oklahoma County

Indian Territory Illuminating Oil Co. made location for No. 1 M., K. & T., SW cor., Section 35-12-3w, Oklahoma City Pool. Wirt Franklin Petroleum Corp. made location for No. 3 Page, SE cor. SW SE SE, Section 35-12-3w. Location was made for No. 4 Page, SW cor. SE, Section 35-12-3w. Location for No. 5 Page has been made, SW cor. SE SW SE, Section 35-12-3w. Anderson & Prichard made location for No. 3 Roosevelt Place, SW cor. NW NE NE, Section 2-11-3w. No. 4 Roosevelt Place is a location, SE cor. NE NW NE, Section 2-11-3w. Wirt Franklin Petroleum Corp. made location for No. 1 Shahan, SW cor. SE SW SW, Section 2-11-3w, Block 5, Lot 10, Iowa Addition. Tom Slick Oil Co. staked location for No. 1 Classen-Edwards, SE cor. SW, Section 3-11-3w. Location was also staked for No. 1 Frisco, NE cor. SE, Section 3-11-3w. Indian Territory Illuminating Oil Co. is erecting the rig for No. 2 Hammer, NW cor. SW NW SW, Section 11-11-3w. Wirt Franklin Petroleum Corp. made location for No. 11 Lowery, NE cor. NW, Section 12-11-3w. Cromwell-Franklin Oil Co. staked location for No. 33 Trosper Park, SW cor. NE SW, Section 12-11-3w. No. 34 Trosper Park, NW cor. SE SW, Section 12-11-3w, is a location. Indian Territory Illulminating Oil Co. made location for No. 7 Hugh Trosper, SE cor. SW SE NE, Section 14-11-3w. Indian State Oil Co. has the rig up for No. 1 Unknown, SW cor. NE NE NW, Section 14-11-3w. Indian Territory Illuminating Oil Co. made location for No. 1 Phelans Heights, NW cor. SW NE, Section 15-11-3w. The rig is up for No. 1 Lawrence Place, NW cor. NE, Section 15-11-3w, Block 3, Lot 11.. No. 1 Spannagle. NE cor. NW NE, Section 15-11-3w, Block 4, Lot 13, Lawrence Place, is a rig. R. O. Haubelt has the rig up for No. 1 Moreland, NW cor. SW NW NE, Section 2-11-3w. Danciger Oil & Refining Co. has built the rig for No. 1 Unknown, SE cor. SW SE, Section 10-11-3w.

Wirt Franklin Petroleum Corp.'s No. 4 Theimer, NE cor. SE SE, Section 2-11-3w, has been completed for 14,619 bbls. in sand 6,390-6,487 feet. Indian Territory Illuminating Oil Co.'s No. 4 Trosper. SW cor. SE SW. Section 13-11-3w, has been completed for 5,516 bbls. in sand topped at 6,394 feet, after deepening from 6,417 to 6,521 feet. No. 1 E. Trosper, NE cor., Section 14-11-3w, made 9,680 bbls. from sand 6,420-81 feet. Indian Territory Illuminating Oil Co.'s No. 1 E. Trosper, NE cor., Section 14-11-3w, has been completed for 9,680 bbls. in sand 6,420-81 feet. No. 2 Unsell-Krager, NW cor. NE NE, Section 23-11-3w, made 4,443 bbls. in 12 hours in sand 6,366-6,561 feet. Mid-Kansas Oil & Gas Co.'s No. 2 Fortson, C NW NE, Section 24-11-3w, was deepened from 6,-540 feet to 6,600 feet and plugged back to 6,174 feet where it was shut in for 22,000,000 feet of gas. No. 1 Watters, NE cor. NW NE, Section 25-11-3w, has been completed for 12,000,000 feet of gas at 6,330 feet after plugging back from 6,662 feet and ripping pipe. Sinclair Oil & Gas Co.'s No. 9 School Land No. 54, SW cor. NW NE, Section 36-11-3w, made 8,030 bbls. in sand 6,448-6,696 feet. No. 11 School Land No. 54, NW cor. SE NE, Section 36-11-3w, produced 17,-290 bbls. from sand 6,455-6,548 feet. Indian Territory Illuminating Oil Co.'s No. 5 Button, NE cor. NW SW, Section 19-11-2w, flowed 12,875 bbls. from Arbuckle lime 5,995-6,370 feet. No. 10 Jones, NW cor. SE NW, Section 31-11-2w, has been completed for 4,317 bbls. in sand 6,380-6,630 feet. Tom Slick Oil Co.'s No. 7 Hoopes, NW cor. SE NE, Section 31-11-2w, was completed for 2,548 bbls. in Arbuckle lime 6,559-60 feet.

Seminole County

Hilton Phillips and others' No. 3 Chupco, NW cor. SE, Section 20-6-6, is a cellar. Empire Oil & Refining Co. is erecting the rig for No. 2 Dameron, SE cor. NW, Section 20-6-6. Magnolia Petroleum Co. made location for No. 1 Billington, NE cor. SE NW, Section 29-6-6, Konawa Pool. Sinclair Oil & Gas Co.'s No. 2 Miller, SE cor. NW SE, Section 24-9-5, Earlsboro Pool, made 490 bbls. from Wilcox sand 4,182-97 feet. Amerada Petroleum Corp. and Wilcox Oil & Gas Co.'s No. 1 Gates, NE cor., Section 25-9-5, has been completed for 30 bbls. in Wilcox sand 4,180-93 feet. Gypsy Oil Co.'s No. 6 Taylor, SW cor. SE SW, Section 19-9-6, East Earlsboro Pool, made 350 bbls. in Wilcox sand 4,-150-79 feet. Magnolia Petroleum Co.'s No. 1 Sandefur, NW cor. NE NW, Section 30-9-6, is dry and abandoned at 4,-258 feet. McCulloch Oil Co.'s No. 3 Roberts, SW cor. NW NW, Section 16-6-6, Konawa Pool, has been completed for 40 bbls. in sand 2,835-2,935 feet. W. B. Pine's No. 2 Charty, NW cor. SW, Section 16-6-6, made 960 bbls. in sand 2,940-48 feet and 2,974-92 feet. Harris and others' No. 2 Chupco, SW cor. NE SE, Section 20-6-6, has been completed for 205 bbls. in sand 2,952-89 feet. W. B. Pine's No. 1 Cheparney, SE cor. NW NE, Section 20-6-6, swabbed 600 bbls. from sand 2,936-51 feet. No. 2 Cheparney, NE cor. NW NE, Section 20-6-6, was completed for 685 bbls. in sand 2,-906-11 feet. Harris and others' No. 2 Burgess, SW cor. NW SW, Section 21-6-6, has been completed for 1,790 bbls. in sands 2,945-50 feet and 2,968-88 feet.

Stephens County

Carter Oil Co. made location for No. 1 McDonald, NE cor. NW, Section 28-2s-7w. Pearce & Brown's No. 1 Wilkinson "B," SW cor. SE, Section 27-1s-8w, has been completed for 6,000,000 feet of gas in sands 1,940-47 feet and 1,951-53 feet.

Tulsa County

R. E. Downing and others' No. 1-A Allen, SW cor. NE NE NE, Section 32-17-14, is drilling at 750 feet. Basinger and others' No. 1-A Fox, NE cor. SW SE, Section 14-16-13, is drilling at 250 feet. O. K. Petroleum Co.'s No. 4 McDonald, CEL W half NW NW, Section 23-16-14, is drilling at 430 feet. L. E. Lockhart's No. 1 Brown, SE cor. SW, Section 5-16-14, has been abandoned at 1,630 feet.

Wagoner County

Bryan Petroleum Co.'s No. 1 Jackson, SE cor. NE, Section 33-17-16, is spudding. F. E. Webb and others moved a machine in for No. 1 Cruel, NE cor., Section 31-17-17. H. H. Orr's No. 5 B. Grayson, C SE SW, Section 34-17-18, is drilling at 250 feet. H. L. Hollingsworth's No. 1 J. Belcher, SE cor. SW, Section 21-19-16, has been abandoned at 575 feet. C. A. Buzzard's No. 1 Childers, CNL SE SE, Section 33-19-16, is a dry hole at 894 feet. Castle and others' No. 1 Burgess, C SE SW, Section 35-18-16, has been abandoned at 800 feet. Brasheers and others' No. 1 Cowans, NW cor. SW SW, Section 32-18-17, has been abandoned at 1,129 feet.

OIL MEN'S JUBILEE

BIG SPRING, Tex., June 30.—An Oil Men's Jubilee will be held here July 3, 4 and 5. Invitations have been extended to all oil men to attend and the committee in charge of the affair expects a large crowd of oil men from various sections of Texas and elsewhere. Joseph Edwards is general chairman of the committee in charge of the jubilee.

E. T. WILLIAMS DIES

CASPER, Wyo., June 28.—E. T. Williams, pioneer Wyoming operator, died suddenly from heart failure at his ranch at La Mission Muzquiz, Coahuila, Mexico. He founded the E. T. Williams Oil Co. in 1917 and is credited with bringing in the first well in the second Wall Creek sand in Salt Creek.

Barrett Specification PIPE LINE ENAMEL

provides a thick, sound pipe coating

This photo-micrograph shows how flakes of the internal *reenforcement* used by Barrett tend to interlock. They laminate with the waterproofing agent, giving Barrett Pipe Line Enamel unusual tensile strength and toughness.

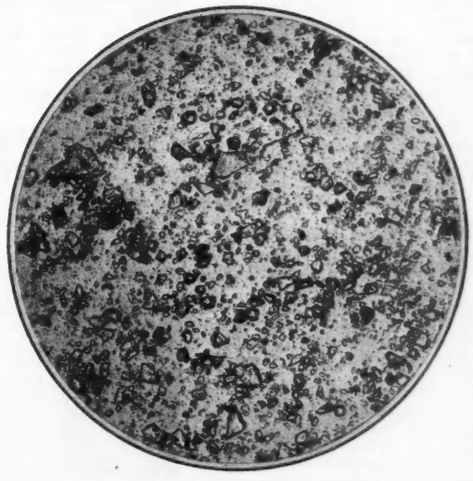
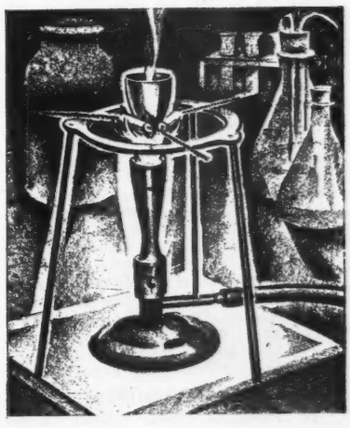


Photo-micrograph above shows how the granular or dust-type *filler* looks. It is composed of tiny smoothly surfaced particles in loose contact.

cification Roofs, Tarvia and Barrett Underground Waterproofings for tunnels, dams, subways and the like.

The Barrett Company is organized to give you the closest and fullest co-operation from beginning to end of the pipe laying job.

This procedure of determining the filler or internal *reenforcement* content of pipe line enamel is a standard of the American Society for Testing Materials.



BARRETT SPECIFICATION ANTI-CORROSION PRODUCTS

Made to meet all the many different conditions of pipe line constructions. They include felt reenforced enamels for rivers, swamps and other extreme conditions; enamels to be applied hot in less corrosive sections; cold applications for still less corrosive parts.

The Barrett Company

40 Rector St., New York

Southeast Ohio Has Only Good Wells

One 160-Bbl. Producer in Fallsbury Township, Licking County, Feature of Week in Eastern Fields. Few Fair-Sized Completions

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., June 30. — The deep sand territory in Southeast Ohio contributed the only good producers in the Eastern fields.

In Section 13, Fallsbury Township, Licking County, the Preston Oil Co. completed and shot in the Clinton No. 3 on the Wallace Davidson & Co. It produced 160 bbls. the first 24 hours.

Three-quarters of a mile north of Tuscarawas, Warwick Township, Tuscarawas County, Blackstone & Co. have completed in the Niagara a test on the Adam Doltz. It is a duster. In Section 8, Bethel Township, Monroe County, the Preston Oil Co.'s second test on the J. W. Johnston is a duster in the Second Cow Run.

At Bolling Mills, Section 4, Knox Township, Vinton County, H. C. Farmer and others have completed in the Berea a test on the Cameron S. Clark. It is a 2-bbl. pumper. In the northwest quarter of Sutton Township, Meigs County, the Twenty-Five Association, Inc., has started to drill No. 21 on the William Carnahan.

In Bethel Township, Monroe County, Gumm & Co. have a 4-bbl. pumper in the Squaw sand at a test on the Levi McConnell. In the same township, F. O. Parks and others are drilling a test on the Charles Brown and showing for a duster. In the same township, L. A. Tinblin is drilling deeper an old well on the C. J. Bode.

Perry County

In the northwest quarter of Madison Township, Perry County, the Atha Oil Co. completed a 50-bbl. producer at No. 15 on the Melich Brothers farm.

In Section 13, Fallsbury Township, Licking County, Horpell and others completed in the Clinton a test on the J. W. Booth. It produced 104 bbls. the first 24 hours. In Section 13, Hanover Township, the Edward H. Everett Co. completed and shot in the Clinton a test on the Criswell-Flenner. It produced 75 bbls. the first 24 hours.

In the southwest quarter of Section 7, Reading Township, Perry County, the Miller Oil & Gas Co. completed in the Clinton a test on the Ettal Spohn lot. It produced 60 bbls. the first 24 hours. In the same section and township, the Preston Oil Co.'s test on the F. D. Helser is dry in the Clinton.

In Section 32, Franklin Township, Monroe County, Shay, McMullin & Co. have completed and shot in the Cow Run sand a test on the N. L. Hines. It produced 25 bbls. the first 24 hours. In Section 2, same township, the Silver Crown Oil & Gas Co. has a 2-bbl. pumper in the Squaw.

In Section 3, Highland Township, Muskingum County, the Wehrle Co. has a gasser in the top of the Clinton at a total depth of 4,535 feet. Three miles north of Caananville, Section 18, Caanan Township, Athens County, Charles D. Mosher & Co. have a 4-bbl. pumper in the First Cow Run at No. 6 on the Lena L. Bean.

WEST VIRGINIA

In Freemans Creek district, Lewis County, the Pittsburgh & West Virginia Gas Co. has completed No. 7,556 on the R. C. Davisson. It is a gasser in the Salt sand. In Union district, Harrison County, the same company has completed No. 574 on the Stephen Pitts. It is showing for a light pumper in the Speechley.

In Troy district, Gilmer County, the Pittsburgh & West Virginia Gas Co. has started to drill No. 7,565 on the Frank Drain. In Skin Creek district, Lewis County, the Hope Natural Gas Co. is drilling No. 7,491 on the J. A. Crathers. In Troy district, Gilmer County, the Carnegie Natural Gas Co. has made a location on the J. M. Matheny.

In Logan district, Logan County, the West Virginia Gas Co. has made a location on the Dingess Run Coal Co.'s property. In McComas district, Cabell County, the Hamilton Gas Co. has completed the road to a location on the R. T. Markin. In Grant district, the Harshbarger Oil & Gas Co. and the Larner Gas Companies have made location on the J. A. and Oscar Conner and A. V. McCullough.

On Tanner Creek, DeKalb district, Gilmer County, the McCall Drilling Co. has a light gas well in the Big Injun at No. 7 on the Riddle Brothers. On Days Run, Clay district, Monongalia County, the Philadelphia Oil Co. has a duster at a total depth of 2,484 feet on the W. L. Keck. On Tanners Creek, DeKalb district, Gilmer County, the Philadelphia Gas Co. has a rig up for its test on the Q. K. Kelley.

COMPLETIONS

SOUTHWEST PENNSYLVANIA

Washington County

Lewis—Waco Fuel Oil Co. 4 3

WEST VIRGINIA

Calhoun County

Center—Bennett hrs., W. H. Bickel 5 ..... gas
Sherman—Stump hrs., L. F. Bickel 1 10

Lewis County

Freeman's Creek—Davisson, Pgh. & W. Va. G. Co. 7,556 ..... gas

Boone County

Scott—Horse Creek L. & M. Co., U F. Gas Co. 4,069 ..... gas
Nelson, Riverhead Gas Co. 4 .... gas

Cabell County

Barboursville—Opphenriam & Wolf, Wilson & Murray 1 ..... gas

Lincoln County

Jefferson—Horse Creek, L. & M. Co., U. F. Co. 3,881 ..... gas
Tudor, Federal Gas Co. 3 ..... gas

Harrison County

Union—Pitts, Pgh. & W. Va. Gas Co. 574 5

Marshall County

Liberty—Wendt, Mfrs. L. & H. Co. 3,435 ..... gas
Wendt, C. B. & A. C. Patterson 2 gas

Marion County

Mannington—Campbell, Monroe & Co. 1 ..... gas

Monongalia County

Clay—Keck, Phila. Oil Co. 3 ..... dry

Wood County

Williams—Athey, Rinehart & Carder 3 10
Ogden, Hoghin Oil Co. 13 2
Johnson, Dunham & Johnson 2 .. gas

Roane County

Geary—Stump, U. F. G. Co. 4,241. gas
Spencer, Epling, Paul Weekly 1 .. gas

Clay County

Henry—Brown, V. G. & O. Co. 24.. 25

Jackson County

Ravenwood—Delaney, Field Gas Corp. 3 2

Wirt County

Reedy—Watkins, Heck Oil Co. 2 .. 10

Gilmer County

DeKalb—Riddle Bros., McCall Drlg. Co. 7 ..... gas

SOUTHEAST OHIO

Tuscarawas County

Washington—Meeks, Gordon Oil Co. & Co. 1 ..... gas
Doltz, Blackston & Co. 1 ..... dry

Muskingum County

Hopewell—Varner, Hope & C. R. Co. 5 20
Perry—McCurdy, Ohio Fuel Gas Co. 1 ..... dry
Washington — Chaplin, Wittmer P. & G. Properties 2 ..... gas
Hopewell—Burrier, Preston Oil Co. 1 60
Highland—Hardy, The Wehrle Co. 1 gas

Holmes County

Hardy—Whl, Ohio Fuel Gas Co. 2. dry

Washington County

Independence—Ward, Schramm & Co. 16 2

Meigs County

Sutton—Krider, Palmer & Co. 3... 5
Carnahan, 25 Association, Inc., 19 4

Athens County

Lee—Knowlton, Latonia O. & G. Co. 1 8
Caanan—Bean, Mosher & Co. 6 ... 4

Perry County

Madison—Melick Bros., Atha Oil Co. 15 50
Perry—Henry, Sturn & Co. 1 1
Reading—Spohn lot, Miller O. & G. Co. 1 50
Helser, Preston Oil Co. 1 ..... dry

Monroe County

Bethel—Bowers, Parks & Co. 1 ... dry
Franklin—Kinnach, Preston Oil Co. 2 ..... dry
Hines, Shay, McMullen & Co. 1.. 25
Fogle, Silver Crown O. & G. Co. 1 2

Ashland County

Lake—Smith, Great Lakes Oil Co. 7 6
Chatham—Sanford-Watson, Oko O. & G. Co. 37 10

Knox County

Boling Mills—Clark, Farmer & Co. 1 2

Licking County

Fallsbury—Davidson & Co., Preston Oil Co. 3 100
Booth—Houpell & Co. 1 104
Hanover—Criswell, Flenner, E. H. Everett Co. 1 75

TWO NEW HEAVY CRUDE PRODUCERS BROUGHT IN AT RIBSTONE FIELD

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, June 28. — The Ribstone Field in eastern Alberta, close to the Saskatchewan boundary, has two additional heavy crude producers. Imperial Oil's No. 2 Ribstone, LSD 14, Section 9-45-1w4, penetrated the sand at 1,684 feet, oil rising 850 feet in the 10-inch casing within a few hours. Flush production is estimated at 20 bbls. an hour. Meridian Oils' No. 2, LSD 1, Section 16-45-1w4, entered the producing horizon at 1,803 feet and oil had risen 960 feet in the hole.

The Ribstone-Blackfoot structure, some distance east of the Wainwright Field, was first mapped by Dr. G. S. Hume about 1924-25. Early tests, including one drilled by Imperial Oil, Ltd., failed to get production. Meridian Oils' No. 1, drilled last year, was the first commercial producer, around 100 bbls. It is claimed new producers are close to the edge of the field. Drilling conditions are relatively easy; the oil-bearing formation is a sheet sand and there is an extensive drainage area. Shooting is unnecessary and there is a distinct absence of the sharply tilted formations common in the Turner Valley Field. A test costs around $20,000 to drill.

London-Ribstone Petroleums' No. 2, LSD 5, Section 22-43-3w4, is reamed out to 2,060 feet and will core from this horizon. Palmer Oils, Ltd., of Vancover, is reported working with rotary structure outfit in Section 18-43-1w4, preliminary to a commercial test.

Wainwright Field

In the Wainwright Field, East Central Alberta, Wainwright Petroleums' No. 1, LSD 6, Section 30-45-6w4, has been drilled into the sand below 2,246 feet, heavy crude rising 140 feet in the hole. The well looks like a fair commercial producer. Onalta Oils' No. 1, LSD 8, Section 20-45-6w4, is bailing, with an estimated production around 100 bbls. of heavy crude better than 20 gravity.

Senator Oil & Gas Development Co. is reported hauling drilling equipment and casing for its No. 1 test in the E half, Section 23-44-6w4. Lloyd's Petroleums' No. 1, LSD 12, Section 6-45-6w4, is arranging for equipment. Associated Refineries, Ltd., some time ago extended its plant in the Wainwright Field, and will take production of the wells recently completed. The company is making weekly tank car shipments of fuel oil, and also marketing its output in drums and tank trucks.

South Turner Valley

In the South Turner Valley area, Section 4-19-2w5, may now be regarded as a definite and important extension. Mercury Oils' No. 3, LSD 2, has come in as a good producer from the deep lime at 5,275 feet; the wet gas flow measured 18,600,000 feet with potential crude naphtha recovery estimated close to 200 bbls. Production is coming from a horizon 192 feet in the lime, or about where the Home wells got their big production. This test was originally Sunlight Oils' No. 1 and was completed as Mercury's No. 3 when Mercury absorbed the Sunlight company. Mercury Oils' No. 2, LSD 12, was shot at 5,393 feet, approximately 300 feet in the lime, with 800 quarts of nitroglycerin, increasing the flow to nearly 10,000,000 feet, and will be a fair commercial producer, making around 90 to 100 bbls.

These developments have resulted in a marked extension of the Mercury drilling program. Mercury's No. 1, which has been standing cemented at 4,585 feet, will erect new derrick and install rotary outfit to drill to production. Mercury's Nos. 6 and 7 will be started just north of No. 3.

In Section 20-19-2w5, Calmont Oils' No. 2, LSD 11, is reported producing steadily, having apparently overcome freezing. Alberta Pacific Consolidated's No. 2, LSD 5, is testing production following a shot at 5,837 feet, and looks like a fair commercial well.

Imperial Tests

In the South Turner Valley, Foothills Oil & Gas Co.'s No. 3 (Southwest Petroleum), LSD 16, Section 8-19-2w5, is still clearing itself after a shot at 6,054 feet. Wet gas production is around 8,000,000 feet and increasing, and a small commercial well is looked for. Baltac Oils' No. 1, LSD 13, Section 20-19-2w5, is cleaning out after a second shot of 320 quarts of nitro, with results still undetermined; the first shot failed to develop satisfactory production.

Royalite's No. 11 is at 3,753 feet and reaming and No. 13 is rigging up rotary outfit to resume at 4,946 feet. Both

(Continued on Page 125)

ENGINES

not bulky engines

If you have been buying bulk and sacrificing portability, get the facts on the new 275 hp. Waukesha. A new bulletin describes it. Also in sizes as small as 25 hp. ***Waukesha Motor Company, Waukesha, Wis.; In the Oil Fields: C. F. Camp Co., Tulsa; Portable Rig Co., Houston; Bradford Supply Co., Bradford, Pa. Waukesha Industrial Engine Sales and Service Co., San Francisco and Los Angeles.***

WAUKESHA

ENGINES

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

WILL THE SIPHON WORK?

Is it possible to tell in advance whether a siphon put in to remove the water from a well will do the work? I have been somewhat prejudiced against this method of removing water for the reason that the only one I ever knew anything about personally was of almost no use after it had been put in. This was several years ago though and it may be that they are more efficient now.—E. T. S.

From information in hand or easily obtained it is usually possible to determine whether or not a siphon will operate, according to I. B. Williams, R. R. Brandenthaler and Morgan Walker, joint authors of a Bureau of Mines paper on the design and operation of gas-well siphons. Before either a continuous or intermittent siphon is installed a careful study of the well's history should be made and the following information should be obtained:

(1) Depth of the well. (2) Daily gas production before the well became inoperative. (3) Water level in the well. (4) Record in shut-in pressure, often erroneously designated "rock pressure." (5) Working pressure which must be maintained on the well so that gas may be discharged into the field line. (6) Time required to drown out the gas and cause the well to cease producing gas.

An accurate measurement of well depth may aid in establishing the source of the water because a well drilled too deep may be producing bottom water. The depth also determines the maximum length of the siphon line and therefore the maximum lift.

The record of daily gas production makes it possible to determine whether all of the gas should be produced through the siphon line or whether part of it should be withdrawn from the casing.

A record of the shut-in pressure forms a basis for determining whether the removal of water is economically justified, as the record will show the limit to which the well pressure can be built up.

If the line pressure remains constant the rate at which the working pressure declines indicates roughly the rate at which water builds up in the well. The working pressure represents the back pressure held against the water columns in the well, hence if water builds up in the well the working pressure is decreased. Conversely, as the water is removed the working pressure builds up, and its rate of increase indicates the rate at which water is being removed, if the changes in working pressure are due to well changes and not to gathering-line pressure fluctuations.

The time required for the well to "go dead" gives some information on the rate at which water enters the well. For example, if the decline in working pressure is slow, water is entering at a slow rate. Often the source of the water may be ascertained from the behavior of the well, which in turn determines the method most adaptable for excluding or removing the water.

The height at which water stands in a well is important because it has a direct bearing on the lift and also establishes the depth at which jets should be placed.

INTERESTED IN A WILDCAT

The writer is interested in a pure and simple wildcat venture and would appreciate some information relative to the drilling of an oil well in absolutely virgin territory. The well is down to a little better than 1,300 feet and according to the geology available oil should be encountered any time now. Assuming the geology correct, is it advisable to drill with 1,200 feet of water in the hole? Is it possible to detect the presence of an oil sand under such conditions if it should be encountered? The driller's main object apparently is to make hole. At night the well is bailed and in the morning the driller immediately begins making hole, continuing until about noon, when he bails his cuttings. No attempt is made to reduce the water level. Then he goes back to drilling and continues until quitting time. If rainbows show on the top of the water or in the slush pit would it be possible to shut the water off by casing and make a producer out of the well?—D. S. R. E.

Your uneasiness is not unnautral and similar concern is likely to be felt by any person financially interested in a wildcat well. The technique of drilling with cable tools varies with the driller, which makes it difficult to give you any positive reassurance, although there is every likelihood that you have no cause to worry so far as the driller's methods are concerned.

Whether it is advisable to drill with 1,200 feet of water in the hole depends upon the character of the strata penetrated. It is to be assumed that the driller is using his judgment, based upon the methods practiced in that area and upon his individual experience.

You apparently suppose that if a rainbow of oil shows the time has arrived to bring in the well. Do not attach too much importance to rainbows. You may observe several of them. They do not of necessity indicate a commercial oil well. At this distance it seems possible to make just one suggestion: Trust your driller. The average drilling contractor is an intelligent man, conversant with his job and less likely to make mistakes if he is let alone than if he is harassed by overanxious backers of the drilling venture.

ESTIMATING GAS PRODUCTION

I am wondering how much gas can be pulled from wells as following in terms of percentage based on known open flow. These wells are 615 feet deep with an average of 20 feet of chat sand, moderately loose, rock pressure 240 pounds with open flow of about 400,000 cubic feet.

Furthermore, I would like to know what is the minimum B.t.u. of gas that could be considered good quality for industrial gas.—C. H. B.

In estimating potential production of gas from a sand body it is the usual practice of the engineer to get a record of the rock pressures at two different periods of flow, and it is also necessary to know the amount of gas that has been delivered during this period.

Assuming that a well has produced 100,000,000 feet of gas with a rock pressure decline of 5 pounds from an original rock pressure of 600 pounds it can be assumed roughly that the total production of the pool by the time the pressure is off to 40 pounds would be:

$$\frac{(600 - 40)}{5} \times 100{,}000{,}000$$

$$= 11{,}200{,}000{,}000 \text{ feet.}$$

If this field is produced at the rate of 5,000,000 feet per day it would require 2,240 days, or 6.1 years, to deplete it. In practice this is not strictly true, as the yield decreases with pressure, and is modified by the number of wells drilled in the pool, by the encroachment of salt water, by retardation in tight-sand wells, by size of the reservoir, and sometimes by leakage through the well into an upper low-pressure sand.

You will note from this that you do not have sufficient data to make even this rough estimate, but it is possible that you can obtain initial and present pressures and amount of gas produced and you can then apply the above formula.

The United States Bureau of Mines lists the B.t.u. values of natural gas in 31 cities in this country and this table shows these values ranging from 955 to 1,247 at 60° F. However, the following equation will give comparative value of gas and coal based upon the price of both fuels:

$$\frac{\text{(B.t.u. per pound of coal} \times 2{,}000)}{\text{(B.t.u. per foot of gas)}} = \text{feet of gas equal to 1 ton of coal.}$$

$$\frac{\text{Feet of gas equal to ton of coal}}{1{,}000} \times \text{price of gas per 1,000 feet} = \text{price per ton of coal that will compete.}$$

Example: Assuming coal to have 14,000 B.t.u. per pound and gas to have 1,000 B.t.u. per foot, at 15 cents per 1,000 feet,

$$\frac{14{,}000 \times 2{,}000}{1{,}000} \times (1{,}000 \times 0.15)$$

$$= \$4.20 \text{ per ton}$$

WHY WAS IT CALLED THAT?

PIPE-DOG

"Dog" as used in mechanics, commonly refers to a toothed device or claw designed for gripping or holding. In the oil field "pipe-dog" refers to a projection on a bull-wheel to lift the bull-rope onto the grooves or a tool used to rotate pipe.

MEANING OF "LAY" IN ROPE

Wire rope is referred to as being of different kinds of lay, for instance right lay and left lay, and there are some other kinds. I wish you would explain just what is meant by the lay of a rope. Why are some referred to as better than others?—S. E. E.

For the answer to your question, given below, this department is indebted to Oscar Hellgren, wire rope splicer for the Youngstown Sheet & Tube Co.

"Lay" signifies the manner in which the individual wires and strands are laid into the completed rope. The rope that is most commonly used is regular lay, so-called because the wires in the strands are laid in the direction opposite to that in which the strands are laid into the completed rope. This is commonly used in this country because, back in the old days when wire rope was forcibly twisted together rather than pre-formed (which means locking within the rope a great deal of torsional stress) the internal stresses found themselves working in opposition to each other—in one direction in the strands and in the opposite direction in the completed rope—with the result that the stresses did much to equalize themselves and make the rope less likely to kink, much less "cranky," and easier to handle than would be the case if both strand and completed rope stresses were pulling in one direction. Whether the rope be left lay regular lay or right lay regular lay depends entirely on whether the strands are laid into the rope clockwise or counterclockwise.

In an effort to provide the individual wires with a greater wearing surface and gain a more flexible rope, the principle of laying the wires and the strands was reversed. That is to say, the strands were laid into the completed rope in the same direction as were the wires into the strands. This is called lang lay rope. As might be expected, this lang lay rope offers several advantages over "regular" lay ropes, chief among which are:

(a) Greater wearing surface, each outer wire having approximately three times the length exposed for wear.

(b) Greater flexibility, because the outer wires of the strand are parallel to the axis of the rope against the manila core and set up less frictional resistance between themselves when bending.

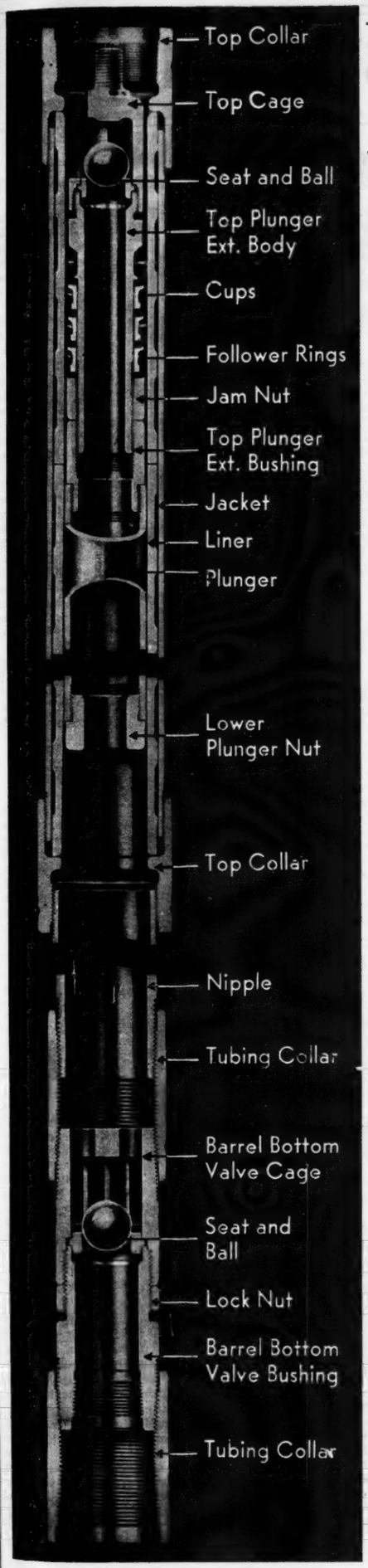
(c) Lower bending stresses, the bending stress in a lang lay rope being approximately 80 per cent of that in a regular lay rope of the same construction and length of lay.

However, lang lay rope has several disadvantages in contrast with regular lay rope, two of which are:

(a) When using lang lay it is absolutely essential that all auxiliary equipment, (sheaves, etc.) be in the best of condition since a pinching sheave, for instance, will more readily deteriorate lang lay than regular lay rope. It will be obvious that to squeeze or pinch a lang lay rope—where the wires within the strangs lay in the same direction as the strands within the rope—will more readily force the wires or strands to lift out of their proper place. This is called "birdcaging"—a fault common to lang lay ropes made in the old way.

(b) By reason of the unopposed internal torsional stress in the nonpreformed lang lay rope it has a great tendency to kink, be "cranky" and hard to handle. In addition, it will "birdcage" more readily than regular lay and because of this fact is unsuited to tasks where there is a need for elasticity or sudden stopping and starting.

As in all ropes, right lay lang lay or left lay lang lay may be determined by whether the strands are laid in the rope clockwise or counterclockwise.



AXELSON "Top Collar Both Ends" LINER PUMP with BARREL BOTTOM VALVE

The pump assembly illustrated is one of the many Axelson combinations. Both ends of the Barrel Bottom Valve Assembly are equipped with regular A.P.I. tubing threads. The cage portion of this valve has a short opening increasing the service rendered by the Seat and Ball by eliminating the pounding effect which would occur if a long cage were used. The strength of the design makes breakage or buckling practically impossible in the event tubing or pump are set on bottom in the pocket cavity of a "shot" hole. The interior of the cage is equipped with ribs and guides which serve to keep Ball in vertical travel. The extremely large capacity allows great quantities of fluid to be handled, particularly advantageous in wells making excessive amounts of water.

Strength and rigidity are marked features in the entire unit.

Complete information regarding this and many other Axelson pump combinations is given in the Axelson Catalog No. 110.

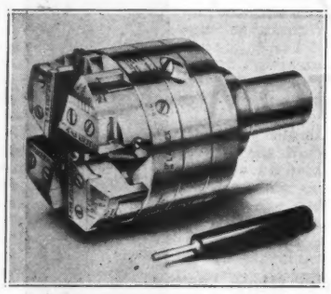
Axelson Manufacturing Co., Ltd.
P. O. Box 337, Los Angeles
Tulsa St. Louis
New York City, 30 Church St.
Mid-Continent and Eastern Distributors
Frick-Reid Supply Corporation

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

EQUIPMENT AND SUPPLIES

TRIPPING DEVICE MAKES THREADING WORK EASIER

The internally tripped Landex head is a recent development by the Landis Machine Co., Waynesboro, Pa. The internal tripping attachment makes the Landex head applicable for close-to-shoulder threading on work which varies in length and where a uniform length of thread is required. It is particularly adapted



for threading operations where a fixed stop cannot be used to open the die head or where the work is held loosely in a fixture, as on a drill press table.

The tripping mechanism consists of a plunger held in the shank of the head, the shank being drilled and tapped to accommodate it. The plunger is adjustable and can be set to any thread length within the capacity of the head. When used on automatic screw machines this head eliminates the necessity of accurate timing of the head-opening cam as the head is positively tripped when the end of the work comes in contact with the tripping plunger.

When used on a machine such as a drill press, the necessity of chucking is eliminated, a socket or floating fixture being used to hold the work. For the threading of parts such as spark-plug bodies, pipe plugs, pipe bushings, BX connectors, bolts, screws, etc., where the thread length remains the same and where the part must be threaded close to a shoulder, this head is particularly suited. The internally tripped Landex head is made in sizes for threading from three-sixteenths inch to 2 inches in diameter.

LINCOLN HAS NEW ELECTRODE

The Lincoln Electric Co., Cleveland, Ohio, announces a new welding electrode for use on light gauge material which will be known as "Lightweld." It can be used on 16, 18, 20 or 22-gauge in making a lap, butt or corner weld. It gives a dense weld free from pin holes. It was designed to be used with a manual carbon arc and with from 30 to 60 amperes direct current and is suitable for horizontal, vertical or overhead work. The size of the rod is one-sixteenth inch in diameter and 30 inches long and it is put up in 10-pound containers.

TANDEM AXLE POLE TRAILER

With announcement of its new tandem axle pole trailer the Spencer Trailer Co., Augusta, Kans., now offers the oil and heavy trucking industries a complete line of pole trailers ranging from single-tire 1½-ton models to tandem axle 10-ton vehicles capable of handling big loads over rough roads. Each wheel acts independently of the three others over rough ground. Even when drawn at a 45° angle across a ditch the trailer maintains its equilibrium without dangerous swaying and sagging, because of the independent action of the four wheels.

FLOAT VALVE MAINTAINS CONSTANT LIQUID LEVEL

The Neilan auxiliary pilot-operated float valve, manufactured by the Neilan Co., Ltd., Los Angeles, Calif., is single-seated and is so constructed that a large float is not necessary to obtain sensitive operation. This Neilan float valve is especially suitable for maintaining a constant liquid level in open or closed tanks by controlling make-up water for cooling tower basins and water levels in reservoirs, surge tanks, cisterns or stand pipes. Neilan float valves may be used for supplying steam to inflow or outflow tank pumps.

Owing to the sensitive pilot operation, this Neilan float valve is easily operated by a small float regardless of the internal pipe line pressure. The pressure of the fluid passing through the valve is utilized for operation. When the valve is open it has the full pipe capacity. It is noiseless in operation and is free from "water hammering." This type of float valve is unsuitable for pressures under 5 pounds because lower pressures do not properly operate the valve. The float swivels to any desired position. Changes in pressure do not affect the operation of this valve. Higher pressures only tend to close it tighter so that it holds without leakage at high or low pressures.

The design enables the composition valve disc and all other internal working parts to be changed readily without removing the valves from the line.

REPUBLIC'S NEW DIVISION

Operations have been started in the new stainless steel finishing division of the Republic Steel Corp. The new equipment is located in Massillon, Ohio. The metal is produced under Krupp license. The equipment consists of 40 units, specially designed by Republic engineers. Rough grinding, polishing and buffing operations are carried on in separate rooms so that no grit in the air may mar the final finish.

MAGNETO IGNITION CORP. MOVES TO NEW QUARTERS

The Magneto Ignition Corp., Tulsa, has moved from its former location on East Second Street to commodious and attractively appointed new quarters at Fifth Street and Houston Avenue. Ray E. Day, president, and M. C. Elworthy, vice president and secretary, began planning an expansion of their growing business following reorganization of the company last year.

In the new quarters the company has added new lines besides enlarging the original departments. The company established a branch in Seminole in April, 1929, to provide convenient service for oil operators in that area. Leon Matthews is manager of the Seminole branch.

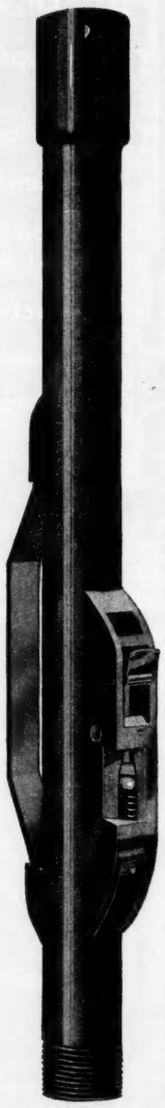
The Magneto Ignition Co., predecessor of the present concern, was organized in 1918 by Mr. Day and Otto H. Wahlauf, formerly of Tulsa, but now in London, England. The company was incorporated in 1924 and the name was changed to Magneto Ignition Corp. two years later. Mr. Wahlauf retired from the organizaiton and Mr. Elworthy entered it in February, 1929.

SERVICE STATIONS ON TRUCKS

Portable service "stations" mounted on motor trucks, bringing to airplanes at landing fields fuel, oil, pressure greasing, water, antifreeze solutions, compressed air, towing equipment, beacon and floodlights and many special tools, is the latest innovation in airport equipment introduced by the Shell Petroleum Corp. at landing fields throughout the country. A fleet of six Dodge Brothers 2-ton trucks constitutes the beginning of this new type of aviation service. Each truck has a three-compartment tank with a capacity of 450 gallons of gasoline. Each compartment is equipped with a motor-driven pump for conveying the three grades of gasoline carried through meters to the tanks in the airplanes.

FRIEND TUBING BLEEDER IS PUT ON THE MARKET

The Brust Tool Manufacturing Co., which has a factory in El Dorado, Ark., and sales headquarters at 2408 McKinney Avenue, Houston, Tex., is manufacturing a tubing bleeder invented by J. A. Friend, of El Dorado, and known as the Friend tubing bleeder. This device is described as automatic, foolproof and dependable. It requires no rotating or weights to be dropped or other extra movements to operate. According to the manufacturer, the bleeder is essentially a part of the tubing and will operate with certainty when the tubing is started out of the well.



These bleeders are stocked in 2, 2½ and 3-inch sizes, A.P.I. upset. Other sizes can be provided.

NEW DISTRIBUTORS

The Hercules Motor Corp., Canton, Ohio, announces the following new distributors of Hercules engines, power units and parts: F. C. Richmond Co., Salt Lake City, Utah, exclusive distributor for the Mountain states; Worthington Machinery Corp. of Oklahoma, Tulsa, exclusive distributor for Oklahoma and adjacent territory; and Alamo Iron Works, of San Antonio, Tex., which will sell Hercules engines and parts in the Winter Garden section of Texas. The Smith-Booth-Usher Co., Los Angeles; Edward R. Bacon, San Francisco; Norvell-Wilder Hardware Co., Houston, Tex., and Bovaird & Co., Bradford, Pa., are Hercules distributors in their respective territories.

NEW EXPLOSIVES DEVELOPED

A new type of explosive, marketed under the name of Gelamite, is announced by the Hercules Powder Co., Wilmington, Del. The result of extensive experimental work in the Hercules laboratories, Gelamite was placed on the market first in small quantities late last year. Field tests were successful, Hercules officials say, and a demand for the product arose. The new explosive is reported to combine the safety and economy features of high ammonia content dynamites with the more water-resistant characteristics of gelatin, at the same time being semi-plastic and easy to handle. It is adaptable to either open or underground shooting.

SHOCK ABSORBER TAKES THE PLACE OF A "CRACKER"

The Keystone Driller Co., Beaver Falls, Pa., announces a new spudding machine for oil wells to a maximum depth of 2,500 feet. The machine is designed to meet the demand for a complete outfit mounted on one traction frame, operated by an internal combustion engine and adapted for handling the proper size of cable tools with wire line to moderate depths and without the use of a temper screw.

Wire line drilling, except at great depths, was not widely accepted at first and in nearly all cases it was found advisable to insert a cracker consisting of a piece of manila cable, 150 feet or more in length, into the drilling line to supply the necessary elasticity. In the new Keystone No. 9 deep well spudder no cracker is used. Elasticity is supplied by two cushions mounted in steel frames at the rear ends of the extended walking beams. Each cushion is composed of discs of rubber, separated by steel plates. The number of discs used can be varied to meet requirements as determined by weight of drilling tools, depth of hole or nature of the formation in which the drill is operating.

The elasticity or cable stretch necessary for the most efficient drill operation is so closely approximated by the results obtained from this device that the No. 9 Keystone, according to the manufacturer, has the merits of a cable machine when operating with manila cordage at shallow depths, at the same time avoiding the disadvantages attached to the use of manila cable, such as friction on the sides of the well or in the water and the excessive elasticity present when operating at considerable depths.

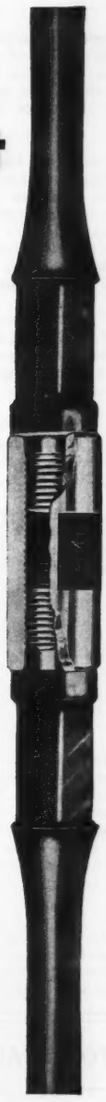
The machine is mounted on half crawlers of approved design, properly placed to carry the bulk of the machine's weight while in traction. The steering wheels are of large diameter, large tire surface, located at the drilling end of the machine. They are controlled by hand wheel from the driver's platform at the rear. The machine can be driven conveniently in either direction.

THE ANSWER

to the Oil Industry's Demand for the Best

D+B

HEATREAT SUCKER RODS and SUCKER ROD COUPLINGS



"If Continental Sells It.... There Is No Better"

THE CONTINENTAL SUPPLY COMPANY
General Offices: ST. LOUIS

THE CONTINENTAL SUPPLY CO., LTD.
224 Traders Building, Calgary, Alberta, Canada

Export Offices:
CONTINENTAL EMSCO COMPANY, INC.
74 Trinity Place, New York
London Offices: 316-17 Dashwood House, Old Broad St., E.C. 2

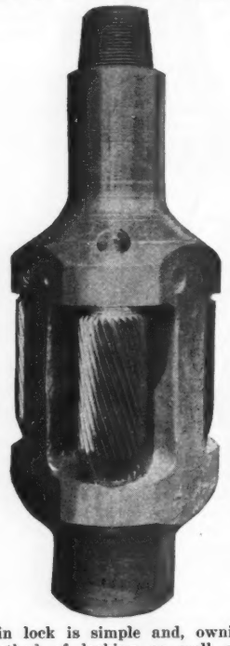
CONTINENTAL EMSCO S. A. R.
7, Strada Eminescu, Ploesti, Romania

CONTINENTAL

EQUIPMENT AND SUPPLIES

UNUSUAL CUTTING AREA POSSESSED BY REAMER

The Three-Point reamer, a product of the Globe Oil Tools Co., Los Nietos, Calif., has features which the manufacturers say add greatly to its efficient performance. The shank is made in one piece, of special heat-treated alloy steel.



The pin lock is simple and, owning to the method of locking as well as the large size of the pin, is asserted to be absolutely safe.

All reamer cutters and pins are carbonized and heat treated. The cutter washers are securely held against turning, thus avoiding shank wear.

The cutting diameter of the reamers averages one-third the diameter of hole, permitting larger diameter pins. It is said that this type of three-point or double three-point reamer has unusual cutting surface area.

CRANE OBSERVES ANNIVERSARY

Simultaneous picnics attended by approximately 85,000 persons in widely scattered parts of the world have been arranged in celebration of the seventy-fifth anniversary of the Crane Co., manufacturer of valves used in the oil industry. R. T. Crane, founder, started business in a little brass and bell foundry in a corner of his uncle's lumber yard in Chicago on July 4, 1855. Above his work-bench he hung this statement of policy: "I am resolved to conduct my business in the strictest honesty and fairness; to avoid all deception and trickery; to deal fairly with both customers and competitors; to be liberal and just toward employes; and to put my whole mind on the business."

TWO COMPANIES CONSOLIDATE

Another example of the trend toward consolidation in the industrial field is the affiliation of the Goslin-Birmingham Manufacturing Co. of Birmingham, Ala., with Whiting Corp. of Harvey, Ill. The Goslin-Birmingham Manufacturing Co. is the successor to the old Birmingham Machine & Foundry Co. and the Joubert & Goslin Machine & Foundry Co. Whiting Corp., with its subsidiaries, Swenson Evaporator Co., Grindle Fuel Equipment Co. and Joseph Harrington Co., is a pioneer manufacturer of foundry equipment and a leading crane builder.

TRADE LITERATURE RECEIVED

Yale electric industrial lift trucks, tractors and trailers are shown in a variety of uses in the current issue of the Transliftor News, published by the Yale & Towne Manufacturing Co., Stuebing Division, Cincinnati, Ohio.

Correct practice for replacing sections of operating pipe lines by means of oxwelding is outlined in an article in the June number of Oxy-Acetylene Tips, published by the Linde Air Products Co., New York.

The Wagner Electric Corp., St. Louis, Mo., has published a 16-page bulletin on Fynn-Weichsel motors. It discusses the problem of poor power factor, the cost of poor power factor, early attempts at power factor correction, and the application of the Fynn-Weichsel motor to its solution, with curves and illustrations.

"Graphite Lubrication" and "Lubrication of Power Transmission Equipment" are among subjects in the current number of Graphite, published by the Joseph Dixon Crucible Co., Jersey City, N. J.

CP demolition tools and sheeting driver are the subject of a 12-page bulletin, in colors, just published by the Chicago Pneumatic Tool Co., New York..

The June number of the Bridgeport Driller, published by the Bridgeport Machine Co., Wichita, Kans., contains much material of interest to oil producers.

"Reducing Transportation Costs by Means of Engine Design" is the subject of a pamphlet issued by the International Nickel Co., New York, dealing with the part which nickel plays in engine design. The author is E. J. Hall, vice president of the Hall-Scott Motor Car Co., Berkeley, Calif.

Engineers and executives of industrial plants and central stations who are faced with the problems of boiler scale elimination will find helpful information in a bulletin just published by The Griscom-Russell, Co., New York, which discusses the functions, applications and advantages of evaporators for distilling boiler-feed make-up water.

A small folder issued by the American Chain Co., Inc., Bridgeport, Conn., contains a table of specifications of the various sizes of Ajax steel loading chain.

BUSINESS NOTES

Victor Raff, manager in Houston, Tex., for S. F. Bowser & Co., Inc., has moved his office from 1217 Caroline Street to the Merchants and Manufacturers Building.

The Brown Instrument Co., Philadelphia, Pa., let a contract for 40,000 square feet of additional floor space in the form of two additional floors on all of the new two-story concrete sections of the plant.

At the quarterly meeting of the board of directors of the Chicago Pneumatic Tool Co., New York, W. L. Lewis, formerly assistant comptroller of Bethlehem Steel Corp., was elected vice president, secretary and treasurer, succeeding J. G. Grimshaw, resigned.

H. D. Ainslie, sales manager of the MacClatchie Manufacturing Co., has returned to the Compton, Calif., office from a trip through the East. While in New York he met Ray W. Perry on the latter's arrival from a five-month stay in South America for the specialty company.

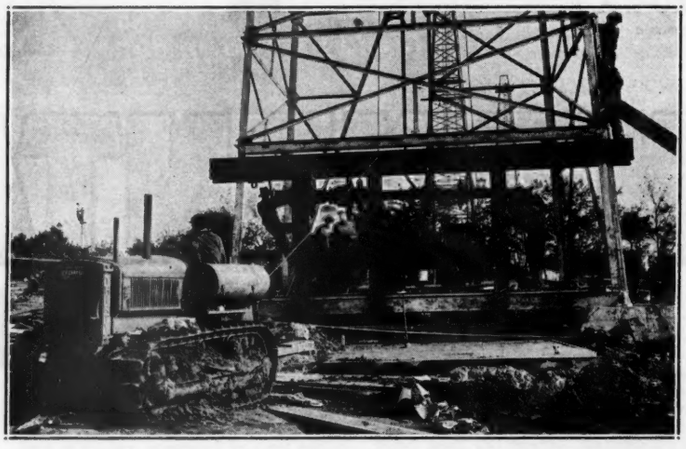
W. Richard Witte has been appointed manager of the New York district for the sale of Harry atmospheric and fan type cooling towers, manufactured by Machold & Riddell, Philadelphia. Mr. Witte will be located at 47 West Thirty-fourth Street, New York.

The Wyatt Metal & Boiler Works, Dallas, Tex., has established a sales office at 15 Park Row, New York, under the management of George E. Gude, Jr. Domestic sales for eastern states will be handled through this office as well as export sales.

The Gas Combustion Co. and Duquesne Burner Service Co. have joined the Swindell-Dressler Corp. with offices and plant in Pittsburgh, Pa. The other companies in the consolidation are William Swindell & Brothers and American Dressler Tunnel Kilns, Inc.

The Key Boiler Equipment Co. of East St. Louis, Ill., is completing a large addition to its plant which will be ready for operation about the middle of August. The company manufactures oil refinery and power plant equipment under its own patents.

WIDENED USES FOR TRACTOR FOUND IN THE OIL FIELD



Here a drilling contractor's crew in the Oklahoma City Field is using a "Caterpillar" 30 with Basco winch to rig up for rotary drilling.

POMONA PUMP UNITS IN SHELL REFINING PLANT

An interesting installation recently made for the Shell Petroleum Corp. in the Deer Park refinery, Houston, Tex., is a Pomona flexible coupling pump head with underground discharge, equipped with a Westinghouse synchronous motor.

Three separate units make up the installation, each equipped with a synchronous motor, and the capacity of each pump is 1,450 gallons per minute with a water lift of 110 feet below the surface and 92 feet above. The motors are 150 horsepower although the actual load requirement is slightly more than 100 horsepower.

These motors operate at 18 r.p.m. and the current characteristics are 2,300-volt, 3-phase, 60-cycle. The water produced by these three Pomona pumps is for the refinery.

MURRAY HYDRIL DISTRIBUTOR

Hydril rotary drilling equipment, manufactured by the Doheny Stone Drill Co., Los Angeles, Calif., is composed of rotary table, drawworks and three-cylinder steam engine, connected by direct drive beneath the derrick floor, eliminating chains, chain guards, braces and head board. It is designed to make a straight hole by use of hydraulically actuated crosshead, having a 42-inch stroke and 250 tons lifting power. It increases the safety factor by elimination of moving parts above the derrick floor.

The Murray Tool & Supply Co., Cleveland, Okla., is distributor for Hydril equipment in Texas, Kansas, Oklahoma and New Mexico. The company has opened a store in Hobbs, N. Mex., where it will handle oil and gas production supplies and maintain a service shop.

DAVIS REGULATOR CO. MOVES

The Davis Regulator Co., Chicago, identified with automatic valve specialties for oil, gas, water, air, and steam flow and pressure control since 1875, is occupying a new factory building at 2541 South Washtenaw Avenue. With announcement of the new address the company's name was changed from "G. M. Davis Regulator Co." to "Davis Regulator Co." The new factory was designed specially for the manufacture of Davis products incorporating many advances in production methods and plant layout.

COMPRESSOR ORDERS RECEIVED

Orders received recently by Clark Brothers Co., Olean, N. Y., for 200 b.h.p. Clark compressors include: Phillips Petroleum Co., six for installation in the Oklahoma City district and 21 in Pampa, Tex.; Wirt Franklin Petroleum Corp., six in the Oklahoma City district; K-P Gasoline Co. and Eason Oil Co., four in the Earlsboro Field; Skelly Oil Co., three in its Eldorado, Kans., refinery; Gulf Refining Co., for its refineries in Sweetwater and Fort Worth, Tex.

Mid-Continent drillers like this tandem set-up

A B2 Drilling Bit and Model 5 Drilling Reamer used by Tippet & Bond Drilling Company in Holder Well No. 1, Oklahoma City, Okla. C. R. Martin, morning tour driller, on left. J. Triggs, afternoon tour driller, on right. Both drillers say they can make more hole with this combination bit and reamer than any similar type previously used.

B 2 DRILLING BIT *and* Model 5 DRILLING REAMER

This successful set-up is being used extensively by operators in the Oklahoma City field, and is reported to be the fastest combination bit for speed and full gauge hole ever introduced in that district.

In the set-up shown here the B2 Drilling Bit is used to make 17-inch hole; and the Model 5 Drilling Reamer, above it, brings the hole out to full 22-inch gauge.

The 17-inch bit normally makes more hole than a 22-inch bit, since the outer part of the cutter sweeps over a smaller circumference. The combination of a 17-inch pilot blade followed by the 22-inch Model 5 Drilling Reamer enables the reamer to remove the material with less effort than if it were at the bottom of the hole, close to the bit.

Write us for further information regarding this fast full-gauge hole maker that is being used in the majority of service holes in the Oklahoma City field.

GLOBE OIL TOOLS CO.

LOS NIETOS, CALIFORNIA

RIPS THRU THE EARTH
NATIONAL TOOL & METALS, Inc.
WIEMAN-KAMMERER-WRIGHT CO., Inc.
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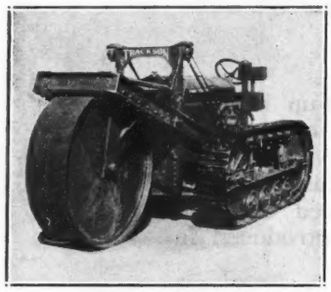
Hobbs, New Mexico
Oklahoma City, Okla.

EQUIPMENT AND SUPPLIES

ROLLER FOR PIPE LINES ANNOUNCED BY TRACKSON

Of interest to contractors and others laying natural gas and gasoline lines is the new Trackson trench roller, manufactured by the Trackson Co., Milwaukee, Wis. This roller provides a simple method of packing down dirt over newly laid pipe lines, an operation required where the pipe passes through cities. It does away with hand tamping and puts back all of the dirt, except that displaced by the pipe, and leaves the ground firm and solid.

Thus the Trackson roller eliminates the need for gravel refills, and there is no danger of the soil settling and cracking pavement which may have been laid over it or causing other difficulties.



Rolling the trench is also advisable where the pipe is laid along country highways, for if the ground is not packed down it is likely to settle and require filling in later.

The wide steel roller, filled with concrete, weighs from 3,000 to 4,000 pounds, the weight varying to meet the requirements of different soil conditions. The roller is built for mounting on the Model DH Trackson McCormick-Deering crawler tractor. Its wide, sure-footed tracks straddle the trench and its light ground pressure (less than 4½ pounds per square inch) virtually eliminates the danger of cave-ins.

The mechanical hoisting assembly of the trench roller is identical with that of the Trackson shovel and the Trackson bulldozer, and it is an easy matter to detach any one of these machines and mount another in its place. In this way a single power unit may be used for several purposes.

The trench roller replaces 20 or more laborers with hand tampers, in addition to saving the cost of gravel refills and other maintenance work which follows when the dirt is not packed down solidly.

SUPERVISING NAPLES PROJECT

N. Finestone, chief operator and construction man for Arthur G. McKee & Co., Cleveland, Ohio, has gone to Naples, Italy, to supervise the installation of a small rerun unit, being built as part of a construction program undertaken by a Naples refinery. Included in the American equipment is a Dubbs cracking unit. Mr. Finestone recently completed an installation in Rumania and also one in Germany.

OVERSEAS AGENTS ARE NAMED

Appointment of overseas distributors for Continental oil well turbine pumps and other equipment is announced by the Continental Equipment Co. of Los Angeles. The T. T. Word Supply Co. of Houston, Tex., will handle distribution in Mexico, South America and Burma. Joseph Streda is to be distributor in Rumania, with headquarters in Ploesti.

J. H. FARRAR TRANSFERRED

J. H. Farrar, until recently working from the Tulsa office of the Pittsburgh Equitable Meter Co., has been transferred back to the main office in Pittsburgh, Pa., where he will specialize in the territory of central Pennsylvania, northern Maryland and western Delaware. Mr. Farrar is a University of Pittsburgh man and worked for the Carnegie Steel Co. in the blast furnace department of the Duquesne plant. He also took the instruction course in the Equitable company's factory in Pittsburgh, which includes work in practically every department of the plant.

J. H. Farrar

"TOM THUMB" EXPANDER MADE FOR SMALL TUBES

The Tom Thumb model is the name given by the Key Boiler Equipment Co. of East St. Louis, Ill., for a handy little tool it has developed for expanding small

diameter tubes, such as in heat exchangers, condensers, boilers, stills, feed water heaters, etc.

This little tube expander is self-feeding and is adapted for hand or power use. It is made up for tubes with outside diameters from five-eighths inch to 1⅛ inches. It is also made up for four different tube sheet thicknesses varying from one-half inch to 1½ inches.

ACCIDENTS DECREASED BY BRAKE ATTACHMENT

The Allen-Oliver Co., Inc., Los Angeles, Calif., has added to its line of oil field equipment the AL-N-OL kickless brake attachment. This device is made in two types, the wedge type and the screw type.

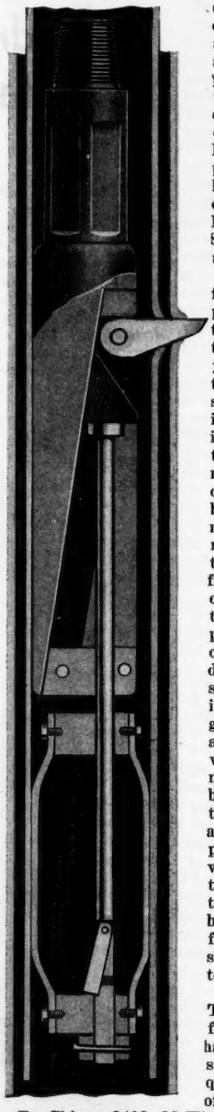
The wedge type brake attachment can be attached to the brakeband of any calf-wheel or hoist, and it has only two moving parts. The wedge on this attachment acts as a "go-between" and overcomes the kick common to the ordinary type of brake where the lever is attached directly to the band. When the lever is thrown ahead to engage the brake the wedge is pulled downward, causing the crosshead to move outwardly and thus tighten the brakeband. The plunger of the crosshead works against the coil spring in the cylindrical housing and when the wedge is pushed up this spring automatically forces the plunger back and releases the brakeband. If the operator wishes to hold the load stationary the wedge will remain in the desired position without his keeping a hand on the lever or chaining the lever to the floor. He can also set the brake at any coasting speed and take his hand off the lever if he desires.

The screw type attachment can be installed on any present type of drawworks. It is a self-contained unit mounted on a bedplate. The attachment prevents the kick-back which has caused so many accidents. This is accomplished by the use of a worm and crosshead. The brake lever is secured to a toothed quadrant which meshes with a bevel pinion keyed to the worm. The crosshead moves back and forth with a positive action which overcomes any kick-back to the brake lever.

The Hercules Motors Corp., Canton, Ohio, has appointed Walter F. Radtke Pacific Coast sales representative, with headquarters in the Russ Building, San Francisco. The company also has opened an office in the Mayo Building, Tulsa, in charge of R. J. Scott, Mid-Continent sales representative.

PERFORATOR OPERATED ON DOWNWARD STROKE

C. A. Brust, Jr., of the Brust Tool Manufacturing Co., El Dorado, Ark., recently invented this double-string perforator, and has placed it on the market under the name of the Brust Double-string perforator. It has been tested out in the El Dorado and Smackover districts.



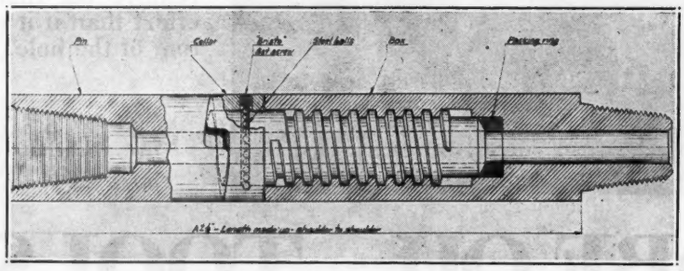
The main feature of this perforator is the distance the blade projects through the double string of casing and forces itself through the outer cement, if the casing has been set in cement. It is not necessary to make a perforation to come out of the hole. The perforator is operated on a downward stroke, avoiding the danger of perforating holes where they are not desired in bringing the tool out at any time. This perforator will work with rotary or cable tools, and is being manufactured in sizes from 4 to 12 inches.

The Brust Tool Manufacturing Co. has established sales headquarters at the offices of Harry B. Shine, 2408 McKinney Avenue, Houston, Tex.

NEILAN IS AGENT

The Vapor Recovery Systems Co., Compton, Calif., has appointed the Neilan Co., Ltd. exclusive sales agent in all oil territory except the Pacific Coast for its line of vapor conservation, vapor recovery and tank equipment which it manufactures under the trade name "Varec." The Neilan organization manufactures a complete line of regulators for oil industry service and maintains sales engineering service in New York, Chicago, Dallas, Tulsa, Houston and Maracaibo, Venezuela. The "Varec" line includes conservation vent valves, safety vent valves, flame arresters, gauge and thief hole covers, automatic tank gauges, manhole covers, explosion relief valves, vapor recovery regulators, tank winches, cable sheave brackets, swing joints, cable collar clamps, swing line nozzles, tank shell nozzles, vent collars, etc.

POSITIVE RELEASE PROVIDED UNDER ALL CONDITIONS

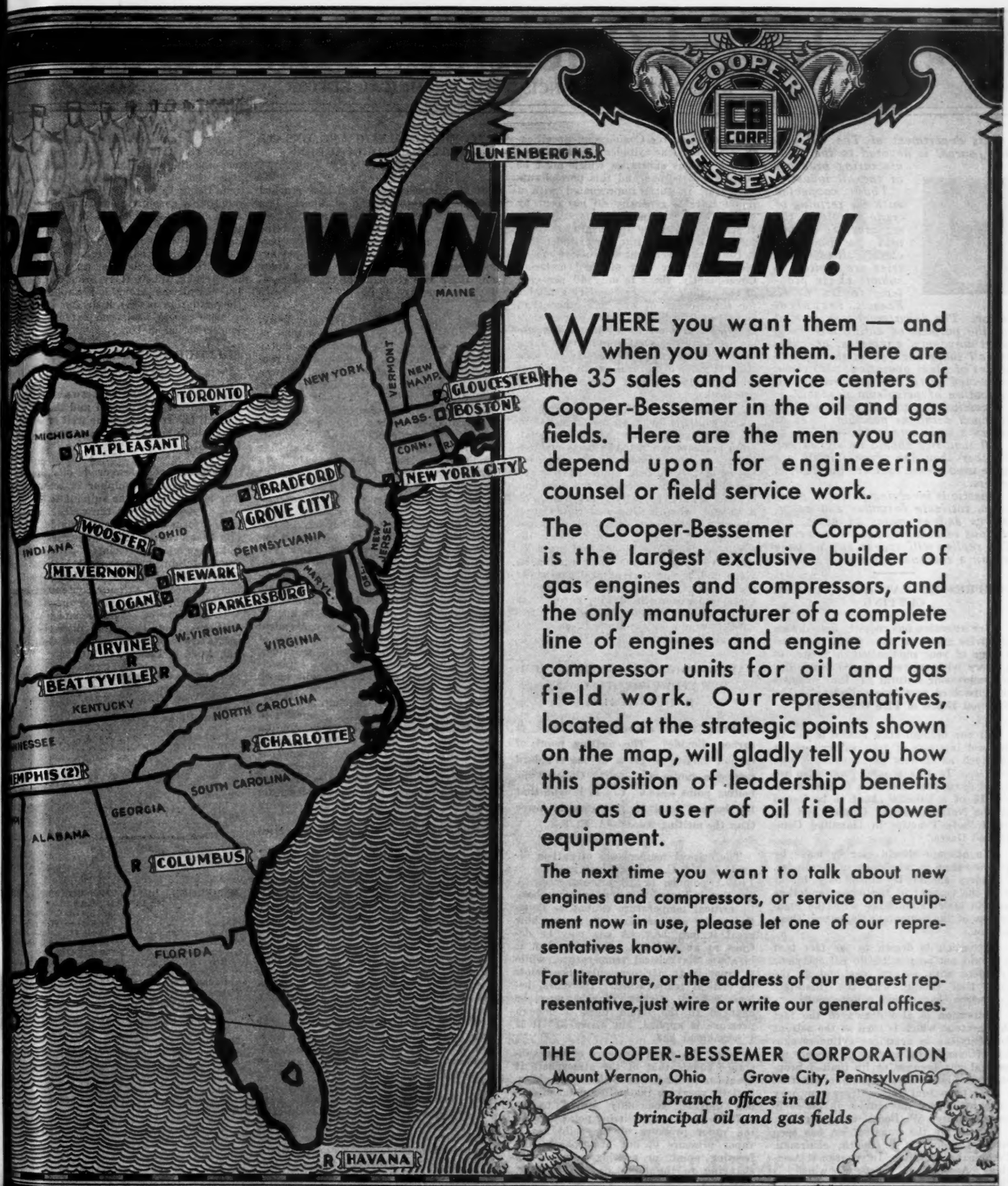


The Baash-Ross Tool Co. of Los Angeles, Calif., has placed on the market a new spiral type drilling safety joint that provides a positive release under all drilling conditions. With its 3-to-1 release safety factor it eliminates the danger of freezing long strings of drill pipe since it requires only one-third the pressure to break the spiral type drilling safety joint that it does to break the pin from the tool box joint.

The joint is composed of three essential parts, pin, box and collar. The collar comes as a unit with pin end held in place with steel retainer balls. The shoulder between the pin and collar is a spiral with direction opposite to that of the tool joint thread, that is: Left hand for right-hand joints and vice versa. It also has a lead several times as great as the thread. The faces of the collar and box are of hardened steel and are provided with an arrangement of driving shoulders which causes them to turn in unison. A rubber packing ring is provided to prevent circulating fluid from working into the threads.

In operation as long as the rotation is in the direction of the tool joint thread the joint is locked firmly together, owing to the wedging action of the collar and seating of the driving shoulders of the ring. As soon as the direction of rotation is reversed, the collar immediately backs off on the spiral, causing the joint to break at the shoulders at this point.

The circulation is according to A.P.I. specifications. During the acid bottle test the acid bottle is not retarded at the safety joint, and will pass onto the fish-tail bit for accurate reading.



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The Cooper-Bessemer Corporation is the largest exclusive builder of gas engines and compressors, and the only manufacturer of a complete line of engines and engine driven compressor units for oil and gas field work. Our representatives, located at the strategic points shown on the map, will gladly tell you how this position of leadership benefits you as a user of oil field power equipment.

The next time you want to talk about new engines and compressors, or service on equipment now in use, please let one of our representatives know.

For literature, or the address of our nearest representative, just wire or write our general offices.

THE COOPER-BESSEMER CORPORATION
Mount Vernon, Ohio Grove City, Pennsylvania

Branch offices in all principal oil and gas fields

ESSEMER

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

COMPRESSED NATURAL GAS FOR CUTTING

"Our attention has recently been drawn to advice given on page 84 of the June 5 issue of your publication in answer to a query with reference to the feasibility of compressing natural gas into commercial dissolved acetylene cylinders."—The National Board of Fire Underwriters.

"In our opinion such advice is not in the best interests of your subscribers, in as much as it does not constitute safe practice. In this general connection we would draw your attention to Precaution No. 15 of a bulletin about to be issued by the National Safety Council and entitled 'Safe Practice in Handling Compressed Gases.'

"No attempt should ever be made by the consumer to mix gases in a cylinder. Cylinders should be filled only by or with the consent of the owner and then only in strict accordance with the regulations of the Interstate Commerce Commission.

"Attention is drawn to the fact that it would not be possible to fill acetylene cylinders with natural gas and at the same time comply with the Interstate Commerce Commission requirements.

"Attention is also drawn to the fact that acetone which is used as the solvent for acetylene in acetylene cylinders cannot efficiently be used as a solvent for natural gas because of its limited properties to absorb that particular material.

"We trust that you will see your way clear to correct this advice in an early issue. George W. Booth, chief engineer.

A letter on the same subject has been received from H. S. Smith, chairman, Technical Committee, International Acetylene Association, part of which is quoted:

"All acetylene cylinders are manufactured in accordance with what is known as Interstate Commerce Commission Shipping Container Specification No. 8, and Interstate Commerce Commission regulations require that cylinders manufactured in accordance with Interstate Commerce Commission Specification No. 8 be used for acetylene only.

"An acetylene cylinder is not merely a hollow shell as a cylinder used for storing oxygen, nitrogen or liquefied gases such as carbon dioxide. According to Interstate Commerce Commission Specifications an acetylene cylinder has to be filled with a porous substance which must be 80 per cent porous and this porous substance is, in turn, impregnated with a liquid solvent, generally 40 per cent by volume of the cylinder's water capacity. It will, therefore, be appreciated that before any gas is put into the cylinder that it contain 40 per cent by volume of liquid and 20 per cent of solid material. Consequently, there is only 40 per cent of the cylinder's water capacity available for the storage of any gas other than acetylene. The liquid solvent employed in acetylene cylinders is acetone which substance dissolves acetylene in very large quantities but will not dissolve the constituent gases of natural gas in quantities which would make its use commercially practical.

"Take the case of an acetylene cylinder which will hold 300 cubic feet of acetylene at 225 pounds pressure, 60° F., a maximum pressure permitted in acetylene cylinders, such a cylinder has a water capacity of 2 cubic feet, approximately. As stated above, 60 per cent of an acetylene cylinder's water capacity is taken up with a solvent or with solid material. Consequently, in the case of a 300-cubic foot acetylene cylinder there would only be available .8 of a cubic foot of space in which to compress gas other than acetylene and, seeing that natural gas would approximately follow regular gas laws if the cylinder were filled with natural gas at 15 atmospheres or 225 pounds pressure, it would only contain 12 cubic feet of available natural gas."

CARBON DIOXIDE CRITICAL TEMPERATURE MELTING AND BOILING POINTS

What is the critical temperature of carbon dioxide? The melting point of carbon dioxide is given in the standard reference tables as —56.7° C., and the boiling point —78.5° C. Is it true that the boiling point in this case is lower than the melting point?—A. E. T.

The critical temperature of carbon dioxide is 31° C.; the critical pressure is 1,073.1 pounds, or 73 atmospheres. A gas that is heated to a temperature above its critical temperature cannot be liquefied under any pressure, no matter how great it may be. A gas may be defined as an aeriform substance when it is above its critical temperature, while a vapor is an aeriform substance below its critical temperature. Therefore, below 31° C. carbon dioxide may be changed to the liquid form if enough pressure is applied, but above 31° it is a permanent gas.

When the vapor pressure of any substance equals that of the atmosphere it is said to boil, or pass to the vapor phase. Strictly speaking the boiling point of carbon dioxide, commonly stated to be —78.5° C., is the subliming point because the vapor pressure of the solid has a vapor pressure of one atmosphere; the freezing point, or melting point, when changing to the liquid form is higher, —56.7° C.

At ordinary pressures liquid carbon dioxide cannot exist but becomes a solid when released, under suitable conditions, from a cylinder. When liquefied carbon dioxide flows from a cylinder, at a temperature below critical, a large portion of it changes to vapor. If the outlet is covered with a heavy cloth, such as burlap, the heat of vaporization is largely absorbed by the carbon dioxide itself, with great reduction of temperature, and the solid carbon dioxide collects on the surface of the fabric as a snow-like mass.

WHY DO AROMATIC AND UNSATURATED HYDROCARBONS STOP KNOCK?

It is generally recognized that cracked gasoline, as automobile fuel, knocks less than straightrun gasoline. And the reason, it is said, why cracked gasoline knocks less mainly depends upon the percentage of aromatic and unsaturated hydrocarbons. Will you kindly let me know why these two elements of cracked gasoline stop knock?—I. A.

There have been many efforts to explain just why some substances tend to produce a knock when used as a motor fuel, and others have the property of preventing or reducing this knock. It was early recognized that gasoline from certain districts was a bad knocker while gasoline made from the crude oil of another district appeared to produce a smooth running condition of the motor with no indication of knocking. A similar condition has been shown to apply to gasoline made direct from the crude (that is straightrun), and that made by processes where high temperatures are employed, especially under cracking conditions. Gasoline composed entirely of fully saturated paraffin hydrocarbons is exceptionally low in antiknock value. The naphthene base crudes, together with numerous mixed base oils, furnish gasoline of relatively high antiknock value. These facts suggest that composition has something to do with the tendency to knock; beyond the fact that there is a chemical difference in the chemical composition of the knocking and nonknocking gasolines, there is no generally accepted explanation as to why one gasoline will knock and another will not.

Normal heptane, boiling at 209.1° F., is extreme in its knocking property, in fact it is far worse than any gasoline on the market. Octane, boiling point at 210.7° F., (2.2.4. trimethyl pentane), is practically free from the tendency to knock. The normal properties of these two hydrocarbons are almost identical; as shown, there is but little diferrence in the boiling points.

Some additional facts may be mentioned. It is recognized that with increase of temperature there is an increase of knocking. Usually sleeve valve engines do not knock as strongly as the poppett valve engines. This has been explained as being due to the fact that the exhaust valve operates at a very high temperature while the exhaust port in the sleeve valve engine is more efficiently cooled resulting in a lower operating temperature. The knocking tendency varies inversely to the highest useful compression ratio. When pressure is reduced the knock is lessened.

Midgley and Boyd have shown that the knocking tendency of gasoline is a function of velocity of burning and that detonation is less the slower the gasoline is burned in the engine.

The most recent theory attempts to show that detonation is due to the gasoline breaking down into its constituents, hydrogen and carbon, with the hydrogen being burned first and then the carbon. The procedure is pictured as one in which oxidation of the hydrogen atoms present takes place as a flash and then upon the completion of the oxidation of the hydrogen atoms, this is followed by oxidation of the carbon atoms as a second flash. Tetraethyl lead and other knock suppressing materials are said to cause the simultaneous oxidation of the hydrogen and carbon atoms. Some believe the antiknock material serves somewhat as a catalyst for the oxidation of the carbon atoms, thus speeding up the oxidation of the carbon atoms to that of the rate of the hydrogen atoms. Recent work may tend to strengthen this theory on the basis that abnormally higher percentages of tetraethyl lead tend to induce a knock and this might be interpreted as meaning the oxidation of the carbon precedes that of the oxidation of the hydrogen. Using this theory, it is also pointed out that a gasoline made from a paraffin base crude and one said to contain saturated hydrocarbons, contains more hydrogen in proportion to the number of carbon atoms than gasoline containing aromatic hydrocarbons or unsaturated hydrocarbons. Where there are a large number of hydrogen atoms it is supposed that the oxidation of the hydrogen comes as a more severe flash and extends over a longer period of time.

SULPHUR IN CRUDE OIL AND NATURAL GAS

Is there any relation between the sulphur content of crude oil and that of the natural gas from the same well or district where high sulphur oils are produced?—H. J. M.

There are very few crude oils that are entirely free from sulphur in some form. The larger part of the sulphur in natural gas, as it comes from the well, is usually in the form of hydrogen sulphide. Crude oils that contain large quantities of sulphur are often associated with natural gas containing hydrogen sulphide.

D. L. Jacobson, of the Koppers Co., has reported the sulphur content of some of the high sulphur petroleums together with analyses of several samples of natural gas from the same districts. The tables are quoted—The Oil and Gas Journal, April 4, 1929, page 116.

SULPHUR CONTENT OF CRUDE OILS

Source of crude—	Sulphur in crude oil (per cent)
Texas:	
Crane-Upton	1.00 to 2.56
Big Lake	0.4
Panhandle	0.60
Winkler County	1.49 to 2.07
Pecos	2.27
California	0.34 to 3.55
Oklahoma and North Texas	0.40
Pennsylvania	0.09
Ohio:	
Lima	0.65
Indiana:	
Lima	0.48
Kentucky	0.12 to 0.49
Illinois:	
Eastern	0.24
Canada	Up to 1
Mexico	Up to 5.3

HYDROGEN SULPHIDE CONTENT OF NATURAL GAS

Source of gas—	Grains of H_2S per 100 cu. ft. of gas*	H_2S content per cent by volume
Texas:		
Crane—Upton	5,080 to 7,610	8.0 to 12.0
Big Lake	5,150 to 6,670	8.1 to 10.5
McCamey	3,180	5.0
Panhandle	127 to 950	0.2 to 1.5
Pennsylvania:		
Lower Oriskany	508	0.8
Ohio:		
Findlay—Fostoria	95 to 133	0.15 to 0.21
Kenton	250	0.39
Indiana:		
Muncie—Kokomo	95 to 127	0.15 to 0.20
Kentucky:		
Glasgow	1,840	2.9
Illinois:		
Olney	762	1.2
Casey	540 to 1,525	0.85 to 2.4
Canada:		
Tilbury Field	400 to 450	0.63 to 0.71
Alberta—Calgary	92 to 650	0.15 to 1.0
Point Albino	470	0.74

*A concentration of 1 per cent by volume of H_2S in the gas is equivalent to 635 grains of H_2S per 100 cubic feet of gas.

D. B. Dow states (U. S. Bureau of Mines, Tech. Paper 310) that the hydrogen sulphide content of uncondensible refinery still gases also depends on the sulphur content of the oils being processed, although there is no direct relation between the sulphur content of the oil and the hydrogen sulphide concentration in the gas. In several refineries where varying amounts of Mexican crude are handled, the sulphur content of uncondensed gases ranges from 600 to 3,000 grains of H_2S per 100 cubic feet.

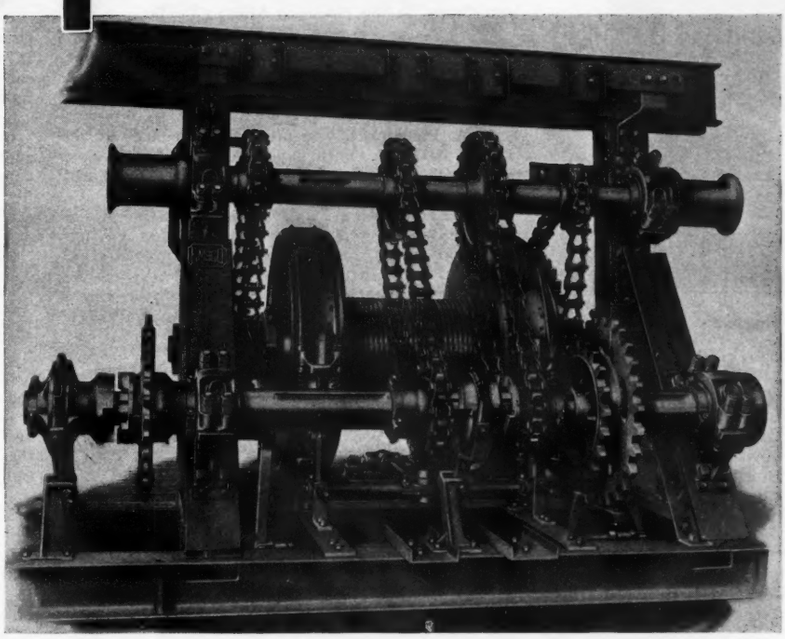
54" Brake Wheels

Greatly increased braking surface, due to increased diameter and percentage of contacting surface.

Less braking effort required

Less wear on lining

Increased drum capacity



with

full contact kick-less brakes

[exclusively EMSCO]

EMSCO TYPE H-54 DRAW WORKS

Patented 1506479, Aug. 26, 1924
Patented 1763511, June 10, 1930
and Patents Pending

Again Emsco leads the way with a larger and heavier draw works. The new and entirely different braking mechanism gives greater braking strength, and is absolutely safe, as kick-backs cannot be transmitted to the brake lever. This brake is simple in construction, easily erected and quickly adjusted. Only one major adjustment is necessary to compensate for wear on the lining.

GENERAL SPECIFICATIONS: Drum Shaft 8" dia., Line Shaft 7½" dia., Jack Shaft 7½" dia., all S. A. E. Chrome-Nickel steel forgings; 10"x10" H-beam Posts, heavily reinforced; all boxes are of self-aligning roller bearing type; Brake Wheels 54" dia. x 9½" face, non-bursting press-forged steel; Spooling Drum 25"x34" grooved.

For complete information write for Advance Engineering Folder No. 94

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All Emsco and D+B Products (Except Derricks) Sold Exclusively in Mid-Continent Fields by The Continental Supply Company

EMSCO STEEL EQUIPPED WELLS ARE SAFE

MEN KNOWN IN OILDOM

O. R. Seagraves

One of the chief figures in the merger of the United Gas Company of Houston, the Magnolia Gas Company, the Louisiana Gas & Fuel Company and several other interests was O. R. Seagraves, president of the United Gas Company and credited with being largely responsible for the development of that organization into one of the great natural gas producing, transporting and distributing systems.

Mr. Seagraves was born in eastern Texas in 1879 and his first regular work was as a railroad telegraph operator in that part of the State. Later he went to Galveston, Tex., as forwarding agent and importer of sisal from Mexico. His first venture in the natural gas business was in the Corpus Christi area in 1924. He developed a transportation and distribution system there and in neighboring cities, supplying gas from the White Point Field. A year later he entered the Refugio Field following discovery of gas there and he acquired important gas rights and acreage. With this he conceived the idea of laying a trunk line to Houston, Tex., a distance of 200 miles, and organized the Houston Gulf Gas Company for this purpose.

Since completion of that project Mr. Seagraves has undertaken in rapid succession other major gas transportation and distribution projects and he has acquired or become interested in other companies of similar nature, most of which have been grouped under the holding company which he organized as the United Gas Company.

Mr. Seagraves is active also in the Moody-Seagraves interests, which include enterprises outside the oil and gas business. He recently was one of a group who purchased a controlling interest in the Freeport Texas Company, a sulphur concern, and he was elected chairman of the board. He also is one of the owners of the Texas Duval Sulphur Company.

PERSONAL PARAGRAPHS

J. Elmer Thomas has been in California for some time but has returned to Dallas, Tex.

* * *

B. Fleeger, of the Oklahoma Steel Castings Company of Tulsa, is calling on refineries in Virginia.

* * *

J. C. Dallas, president of Calmont Oils, Ltd., has returned to Calgary from an extended trip to England.

* * *

P. A. Petty, president of the Kettleman Hills North Dome Oil Company, Ltd., has returned from Chicago, following an absence from California of several weeks.

Floyd R. Frye, state oil and gas conservation officer of Michigan, spent several days in the Muskegon Field.

* * *

P. S. Manley, president of the Texas Creosoting Company, Orange, Tex., has returned from a business trip to New York.

* * *

John Simpson, for some time past employed with Imperial Oil Company, Ltd., in the Turner Valley Field, is visiting in Petrolia, Ontario.

* * *

James Nagle, of the Skelly Oil Company, has completed a survey of market conditions for natural gasoline in the Gulf Coast district.

* * *

Dr. G. S. Hume, of the Geological Survey of Canada, arrived in Calgary recently to start his season's work in the potential Alberta fields.

* * *

W. W. Plowden, general manager of the Sabine Supply Company, Houston, Tex., has just completed a short business trip to San Antonio, Tex.

* * *

F. A. Pielsticker, vice president in charge of refining, and K. J. Smith, superintendent of refineries, Skelly Oil Company, have been visiting New York.

* * *

K. W. Davis, Houston, Tex., representative of the Mid-Continent Supply Company, has been visiting headquarters of the company at Fort Worth, Tex.

* * *

W. A. Jones, first vice president of the Cities Service Company, was in San Francisco, Calif., attending the National Electric Light Association's annual convention.

* * *

The degree of LL.D. was conferred on L. R. Smith, president of the A. O. Smith Corporation, of Milwaukee, Wis., by the University of Wisconsin, at Madison, on June 23.

* * *

N. E. Chance, district manager of the Brown Instrument Company, Houston, Tex., has just completed a trip which took him to all refineries of North Louisiana and Arkansas.

* * *

J. A. Fenwick, president of Fenwick Reddaway Manufacturing Company, of Newark, N. J., visited the Mid-Continent territory last week in the interests of his company's business.

* * *

Robert Jeans, of the statistical department of the Humble Oil & Refining Company, Houston, Tex., has been enjoying a two weeks' vacation by short pleasure trips to near-by resorts.

* * *

J. C. Ballagh, of the Patterson-Ballagh Company, flew to Tulsa from Los Angeles, Calif., for a visit to the oil fields of Oklahoma. He left Tulsa via airplane for Oklahoma City, Okla.

* * *

Dan L. Mahoney, of the Sinclair Crude Oil Purchasing Company, Fort Worth, Tex., and family, have motored back to Boston, Mass., to spend a two weeks' vacation with his relatives.

* * *

William Jensen, president of Jensen Manufacturing Company, Coffeyville, Kans., is making a trip through the Arkansas, Louisiana and Texas oil fields. He expects to leave soon for Mexico and South America.

* * *

C. W. Krouse, land man for the Mid-Kansas Oil & Gas Company, San Angelo, Tex., was married to Miss Ruth Felton of that city, June 21. They will be at home in San Angelo after a two weeks' trip to Glenwood Springs, Colo.

* * *

Carl F. Russ, chief clerk in the production department of the Gulf Production Company, Houston, Tex., has been promoted to assistant to John Tucker, superintendent of production. Mr. Russ, who has been with the Gulf companies many years on the Gulf Coast, succeeds George C. Buchanan, who died recently.

* * *

Cable advice from C. D. Watson, chief engineer for the Carter Oil Company, Tulsa, states that he left Sumatra on June 12 en route to The Hague, Holland. He expects to reach his destination about July 15. Mr. Watson had a touch of fever while in Sumatra but had fully recovered before leaving there.

Forrest Gregory is the newly appointed superintendent of The Texas Company's filling stations in 30 West Texas counties, with headquarters in Abilene. Big Spring, Midland, San Angelo and Abilene are included in his territory.

* * *

Virgil M. McClintic, a Mount Pleasant, Mich., attorney, is head of the newly created legal department of the Pure Oil Company with offices at Saginaw, Mich., where the chief Michigan headquarters of the company are maintained.

* * *

Robert Violette, land man for the Landreth Production Company, Fort Worth, Tex., and Miss Mary Van Zandt of that city, were married at the home of her parents, June 18, and left by automobile for points in New Mexico, Colorado and Illinois.

* * *

G. W. Chamberlain, general sales manager for Fruehauff Trailer Company, Detroit, Mich., and C. B. Caswell, district sales manager of the same company, are in Tulsa on business with their local representative, Williamson Equipment Company.

* * *

C. C. Marietta, geologist, who has been in Venezuela for the past two years with the Venezuela Gulf Oil Company, has returned to the United States for a visit. Before going to Venezuela he was with the Navarro Oil Company, at San Angelo, Tex.

* * *

Ernest Hartford, assistant secretary for the American Society of Mechanical Engineers, is again in Tulsa for an indefinite stay in connection with the work of the Petroleum Division of the society. He is making his headquarters at the Tulsa Club.

* * *

Scott Turner, director of the United States Bureau of Mines, has received the honorary degree of Doctor of Engineering from his alma mater, the University of Michigan. A few days before he received the honorary degree of Doctor of Science from the Colorado School of Mines.

* * *

Mr. and Mrs. J. Clifton Hackett, of Peru, South America, whose marriage took place at Colon, Panama, on June 7, are spending four months in Petrolia, Ontario, and vicinity. Mr. Hackett is on the International Petroleum Company staff, and Mrs. Hackett formerly taught school in Peru.

* * *

J. B. Saunders, sales manager of the Imperial Refining Company, is being moved to Ardmore, Okla., at which point all of the Imperial Refining Company's sales will be handled after July 1. All the traffic work of the Imperial Refining Company will also be transferred to the Ardmore office at the same time, and the supervision will be under F. O. Moore.

* * *

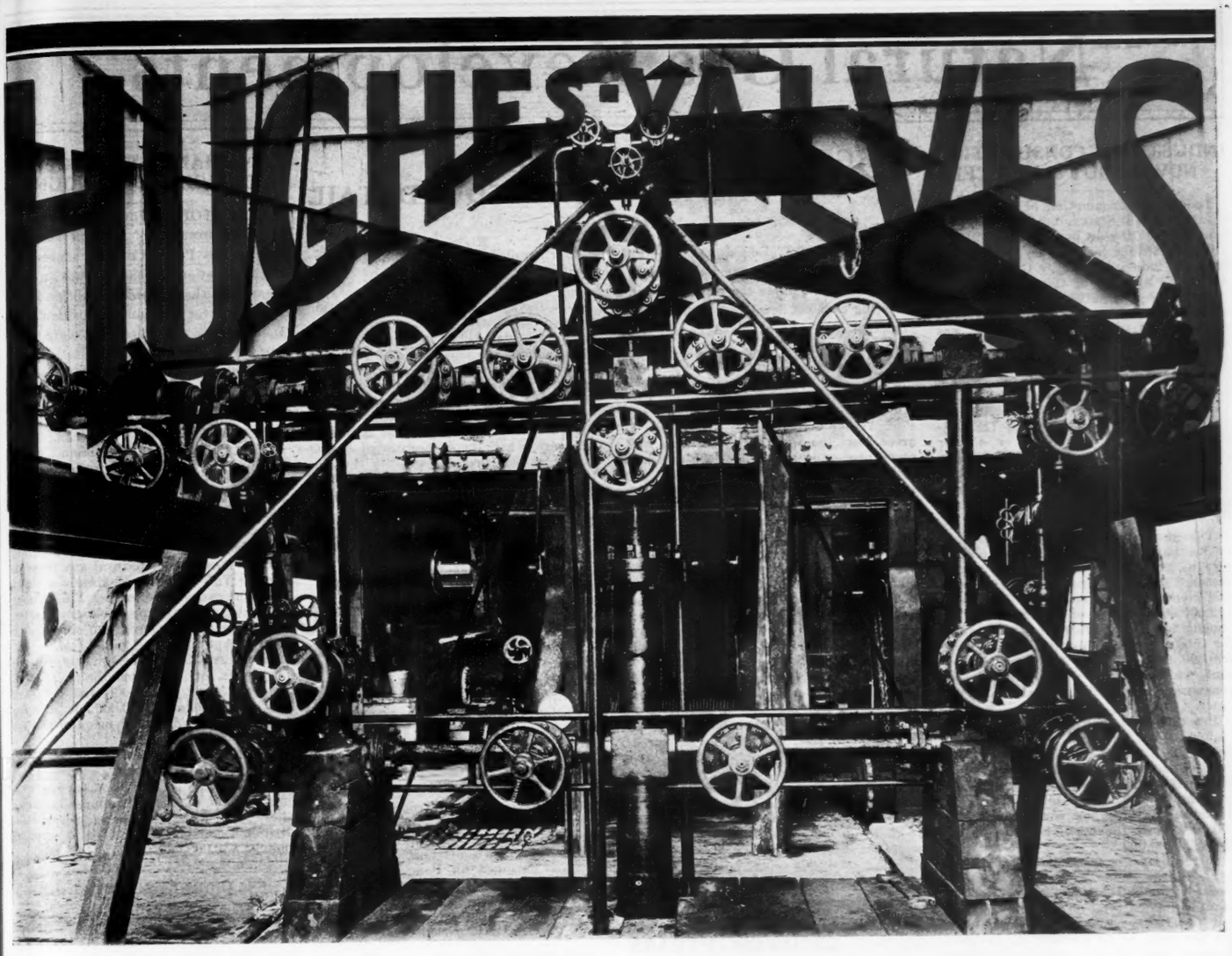
H. S. Forgeron, formerly geologist for the Superior Oil Company, and now consulting geologist for the Penn Oil Company, and Harold Vance, formerly production engineer for the Marland Oil Company in the West Texas area and now consulting geologist for the Balance Oil Company, Ltd., announce that they have formed a partnership as consulting geologists and petroleum engineers with offices at San Antonio and Midland, Tex.

* * *

Barney Holland, Fort Worth and Dallas, Tex., distributor for products of the Continental Oil Company, has been appointed president of the Reagan County Purchasing Company, subsidiary of the Continental Oil Company, to succeed H. J. Cochran who has resigned to become an independent operator. Mr. Cochran has been president of the company for the past three years. G. H. McIntyre, general agent for the Continental Oil Company, Fort Worth, is vice president; Burney Braley, secretary-treasurer; and R. L. Roberts, assistant secretary.

* * *

K. B. Nowels, supervising engineer of the United States Bureau of Mines petroleum research office at Laramie, Wyo., has turned in his resignation effective July 1, 1930, and will become chief petroleum engineer for the Forest Oil Company at Bradford, Pa. Mr. Nowels was formerly connected with the Midwest Refining Company in the Salt Creek Field as petroleum engineer and later entered the bureau's service in July, 1923. He was first stationed at Shiprock, N. Mex., and later transferred to the Laramie and Dallas, Tex., offices. In February, 1926, he returned to the Laramie office as supervising engineer.



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Natural Gas Developments

INDUSTRIAL CONSUMPTION NOW ABOUT 80 PER CENT

Industrial consumption of natural gas in the United States increased 154 per cent in the 10-year period from 1919 to 1929, according to a survey of the natural gas industry made by G. E. Barrett & Co. As a result of this growth of industrial use of natural gas, the manufacturing industry now consumes about 80 per cent of the entire natural gas output.

There has been a marked increase in the consumption of natural gas as fuel for generating electric power by public utility companies, the survey adds. In 1929, this particular field used 112,847,000,000 feet of natural gas, or 45 per cent more than in 1928. This compares with 21,000,000,000 feet used for this purpose in 1919. Natural gas fuel now generates about one-tenth of the electricity used.

The survey shows a strong tendency on the part of manufactured gas companies to mix natural gas with the manufactured product to increase its efficiency and give greater economy. In 1929 about 112,000,000,000 feet of natural gas were bought by manufactured gas companies for this purpose, comparing with 77,400,000,000 feet in 1928, a gain of 45 per cent, while the total gas output of these companies increased only about 9 per cent.

Practically one-half of the cities of the United States provided with gas mains are supplied with natural gas, while one-third of the American cities with a population of 100,000 or more are served with natural gas. The total number of American natural gas consumers is 4,800,000, while the population served exceeds 20,000,000.

In the 24 years from 1906 to 1929 the total consumption of natural gas increased from 388,800,000,000 feet in 1906 to an estimated total of 1,900,000,000,000 feet for 1929, an aggregate increase of 388 per cent, or an average annual gain of more than 16 per cent. In the same period the total consumption of manufactured gas increased from 122,800,000,000 feet to 432,100,000,000 feet, a gain of 252 per cent, or an average annual increase of 11 per cent.

The following table shows consumption of natural and manufactured gas compared for 24 years, in billions of cubic feet, and the number of customers served, in thousands:

	Natural gas		Manufac. gas	
	Consumption cu. ft.	Customers	Consumption cu. ft.†	Customers
1929*	1,900	4,800	432	12,200
1928	1,568	4,366	423	11,841
1927	1,445	3,984	413	11,450
1926	1,313	3,731	405	11,047
1925	1,188	3,508	369	10,600
1924	1,141	3,443	356	10,200
1923	1,007	3,234	349	9,800
1922	762	3,032	318	9,400
1921	662	2,652	301	9,200
1920	798	2,636	300	8,837
1919	745	2,526	279	8,484
1918	721	2,525	271	8,200
1917	795	2,450	264	7,900
1916	753	3,381	231	7,600
1915	628	2,213	204	7,300
1914	591	2,095	198	6,980
1913	581	1,934	188	6,660
1912	563	1,637	178	6,340
1911	513	1,512	159	6,020
1910	509	1,343	149	5,700
1909	480	1,241	142	5,425
1908	402	1,180	138	5,150
1907	406	1,071	132	4,875
1906	388	884	122	4,600

*Partly estimated. †Sales of natural gas by manufactured gas companies are included in 1918 and prior years.

OKLAHOMA GAS SERVICE

There are in Oklahoma 96 companies engaged in distribution or transportation in natural gas. Approximately 325 towns in the State now have natural gas distribution systems and service is rapidly being extended to other communities.

LARGEST SINGLE GAS METERING STATION DESCRIBED IN DETAIL

By D. H. Bancroft

SHREVEPORT, La., June 30. — The largest single gas metering station in existence at this time is the solution of the metering problem developed with the construction last year of the Arkansas-Louisiana Pipe Line Co.'s (Arkansas Natural Gas Corp.) 20-inch pipe line from the Monroe and Richland gas fields across north Louisiana to connection with other lines to Houston, Beaumont and Port Arthur and to Little Rock, Ark. It arose from the company's contracts with seven producing companies each of which had its own ideas as to location, construction, materials, meter equipment, etc., and each of which was equally interested in all the others' ideas due to each delivering a certain percentage of all gas delivered to the big line.

The seven producers—United Carbon Co., Southern Carbon Co., Interstate Natural Gas Co., Industrial Gas Co., Palmer Corp., Dixie-Gulf Gas Co., and Hope Producing Co. had contracted with the Arkansas Natural Gas Co. to deliver a certain percentage of the latter's daily requirements at a specified point, and in as much as it was expected to handle 185,000,000 feet per day, to be delivered at a minimum of 200 pounds, all of which, of course, had to be measured, there arose a very complicated situation as to the number of meter installations to be built. In the case of some of the deliveries the gas was to be measured as many as four times to satisfy all parties to the contracts, as the buyer's contracts were not directly with the producer, and in other cases one pipe line to the meter station handled gas for as many as three producers.

Adopt Buyer's Plan

In attempting to arrive at a solution of the problem the buying company, Arkansas Natural Gas Corp., submitted a plan to the seven concerns supplying the gas, and it was agreed that all meter stations should be consolidated into one plant to be built at the Arkansas' Munce compressor station in the Monroe Field, construction to be done by the Arkansas corporation and the cost prorated among the interested concerns. Hence the station's rating as the largest in existence at this time, the following description of it being taken from an article by W. R. McLaughlin, of the Arkansas Natural Gas Corp.

"Westcott orifice meters with flange connections were agreed upon for the measuring equipment, two sets of which were required, as the buyer company intended using check meters in all instances. That is, the primary meters were to be those of the selling company and the secondary meters those of the buyer. In the case where the gas was to be accounted for four different times the first two companies accept the measurements of the primary meter with the meter belonging to the party responsible for the initial delivery. The other two companies accept the measurements of the secondary meter with the meter belonging to the final purchasing company. The two concerns accepting the other two companies' measurements have the right to install their own differential and static

(Continued on Page 125)

KETTLEMAN HILLS GAS GOOD FOR 75 YEARS

Kettleman Hills, according to Claude C. Brown, gas administrator of the California Railroad Commission, is the largest and most prolific oil and gas field yet discovered, and is at present producing a daily total of 420,000,000 feet of natural gas. The value of the field is conservatively estimated at $400,000,000, says Mr. Brown, and geological experts have estimated that it contains sufficient gas to daily produce 400,000,000 feet of gas for 75 years.

Natural gas now is one of California's most important resources and comprises approximately 90 per cent of all gas used by the 2,000,000 gas consumers in California. By July 1, the service to all gas consumers in the San Francisco, East Bay and San Jose areas will have been changed over from manufactured gas to straight natural gas. The change gives to the consumer a gas of approximately 1,150 B.t.u. a cubic foot, compared with 550 in the manufactured gas previously used.

The bringing of natural gas to the San Francisco Bay area and central portions of the State involves a total investment of $30,000,000 and an ultimate capacity of 3,000,000,000 feet a day.

ASK TO RENEW FRANCHISE

MUSKOGEE, Okla., June 28.—A proposal that a vote be taken regarding the granting of a new franchise for the Oklahoma Natural Gas Co. by citizens of Muskogee on July 29, the date of the state and county primary, has been presented to the city council by attorneys for the gas company. The franchise will expire in November of this year. A 25-year extension is asked.

CANADIAN GAS NEWS

CHATHAM, Ontario, June 30.—Announcement has been made by the Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary that natural gas will be delivered to the town of Foremost, Alberta, early in July.

An agreement has been reached between the Edmonton, Alberta, city council and Northwestern Utilities, Ltd. under which a 10 per cent reduction in rates for domestic and commercially-used gas will become effective immediately on approval by the Alberta Public Utilities Commission.

The Windsor Gas Co., supplying natural and mixed gas to Windsor and other Ontario border cities, will apply to the natural gas referee, Hon. G. F. Henderson, for increased rates. The present minimum domestic rate is 65 cents.

NAMED VICE PRESIDENTS

LOS ANGELES, Calif., June 28.—The board of directors of the Southern California Gas Co. has elected F. J. Schafer and William Moeller, Jr., vice presidents. Mr. Schafer was formerly general manager, and Mr. Moeller was manager of natural gas production and transmission. Mr. Schafer has been with the company ever since it started operation 23 years ago and Mr. Moeller for the last 16 years.

GAS FOR HALLETSVILLE

HOUSTON, Tex., June 30.—United Gas Co. of Houston, through its subsidiary the Houston Gulf Gas Co., has been granted a franchise to distribute natural gas at Halletsville, Lavaca County. This city will be served from the company's line from Southwest Texas to Houston.

CANADIAN GAS MERGER OFFICIALLY ANNOUNCED

NEW YORK, June 28.—Frank T. Hulswit, president of the American Commonwealths Power Corp., announces that the corporation has entered into an agreement with the American Utilities & General Corp. for the joint acquisition of the Dominion Gas & Electric Co. from the International Utilities Co.

American Commonwealths Power Corp. will control over 60 per cent of the Dominion Gas & Eelectric Co., which controls Canadian Western Natural Gas, Light, Heat and Power Co., Ltd., Northwestern Utilities, Ltd., Canadian Utilities, Ltd., Union Power Co., Ltd., Nanaimo Electric Light, Power & Heat Co., Ltd., and certain miscellaneous investments.

The properties include natural gas reserves in some of the important gas fields of western Canada and contracts for the purchase of natural gas from the Turner Valley Field. Engineers estimate the total gas reserve around 175,000,000,000 cubic feet, and probable gas reserves of prospective gas acreage of several hundred billion additional cubic feet.

Gross earnings of these newly acquired properties for the 12 months ended April 30 were about $4,100,000 and net earnings more than $2,100,000, it was announced. Immediate extension of the system is contemplated.

The transfer is one of the biggest deals in the history of western Canada. Assets of the Calgary and Edmonton gas companies, and of other holdings, including those in Alberta, Saskatchewan and British Columbia, are placed at approximately $30,000,000.

CALIFORNIA NATURAL GAS

LOS ANGELES, Calif., June 28.—Work has started on laying the mains that will bring natural gas to Oakdale, Stanislaus County, from the Kettleman Hills. The Oakdale-Riverbank gas line will tie into the main feeder line at Ripon, and will be brought over to Riverbank and then on to Oakdale. The present main serving Riverbank from the Oakdale plant, will be abandoned and the 2-inch pipe will be replaced with 4 or 6-inch.

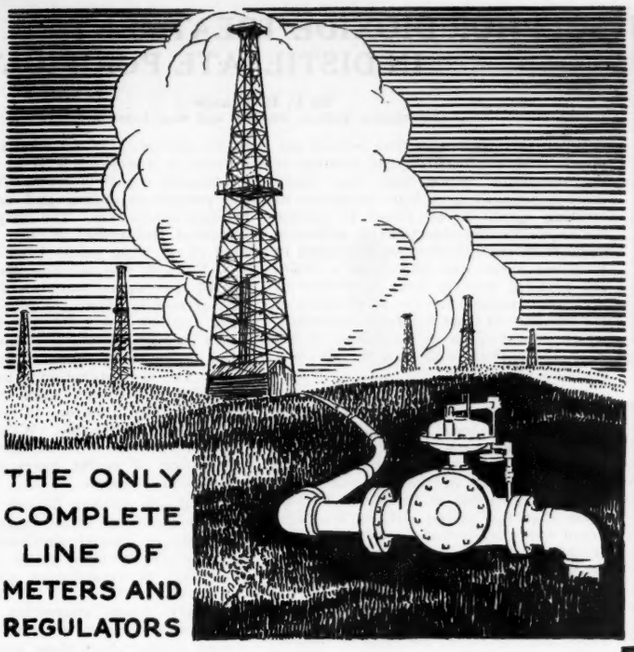
Modesto will have natural gas about July 7, Louis J. Nevraumont, manager of the Modesto Gas Co., announced. A Pacific Gas & Electric Co. crew of 90 men, now at a camp at Manteca in San Joaquin County, will be moved to Modesto to complete the job of piping the natural fuel to this district. Pacific Gas & Electric Co. has been authorized by the State Railroad Commission to acquire the remaining 302 outstanding shares of stock in the Modesto Gas Co. by exchanging 3,572 shares of its common.

Claude Brown, engineer of the State Railroad Commission in charge of the electric and gas division, will make a study and digest of arguments submitted to date in the hearing being held by the commission on proposed natural gas rates for the Fresno territory under the schedule advanced by the Pacific Gas & Electric Co.

Consumers Gas Co. has been granted franchise rights for the distribution of gas in the cities of Los Banos and Gustine, and the county of Merced.

Southern California Gas Co. has been authorized by the State Railroad Commission to exercise franchise rights for the distribution of gas in the city of Delano, in Kern County.

Southern Counties Gas Co. has applied to the Railroad Commission for certificate of public convenience and necessity for distribution of gas in territory north and west of Santa Monica.



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Interchangeable Diaphragm Heads
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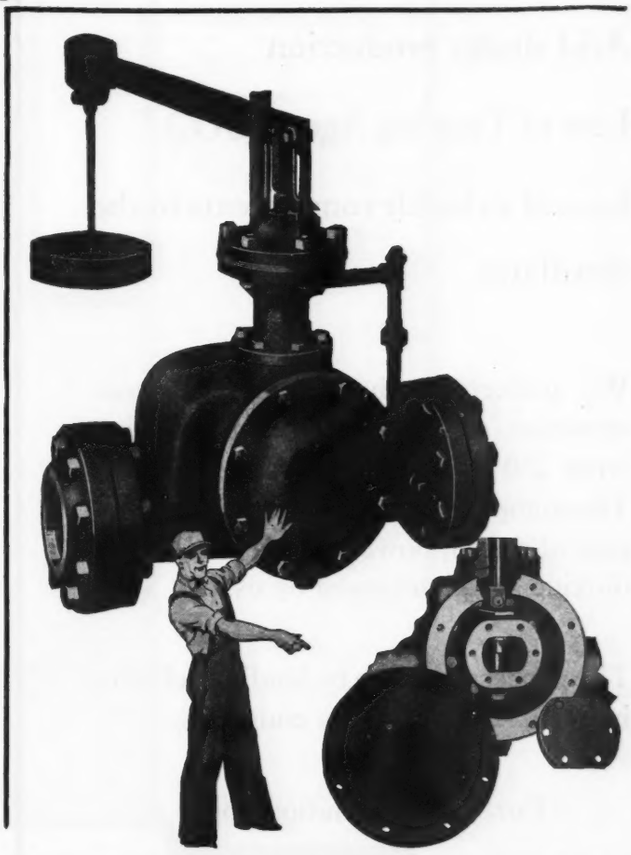

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SULPHUR DIOXIDE TREATMENT IN DISTILLATE PURIFICATION

By C. K. Francis
Technical Editor, The Oil and Gas Journal

When petroleum was first refined sulphuric acid was used for the treating of the distillates. Since that time many other substances have been suggested as treating agents in an effort to replace the expensive and objectionable sulphuric acid. With the discovery of petroleum in Rumania there was introduced a refining problem because large quantities of acid were required for the purification of the burning oil fractions from this crude, which contained large quantities of asphaltic material with appreciable percentages of sulphur.

The eminent Rumanian chemist, Dr. L. Edelenau, conducted extensive investigations with the object of manufacturing a high grade kerosene from the Rumanian petroleum. He found that by shaking 100 parts by volume of the kerosene distillate with 75 parts of liquid sulphur dioxide that two clearly defined layers of liquid were obtained, the upper layer consisting of saturated and naphthene hydrocarbons with approximately 15 per cent sulphur dioxide; the lower layer was chiefly sulphur dioxide, together with aromatic and unsaturated hydrocarbons. From both of these, the sulphur dioxide was removed by evaporation almost completely so that the kerosene was produced with excellent burning properties when used in lamps. The substances removed by this treatment were those of poor illuminating value, producers of smoke and wick incrusting materials. When the sulphuric acid method was applied to the same kerosene, it was found that the acid not only attacked the aromatic and unsaturated hydrocarbons, but also extracted from the kerosene a large part of the desirable saturated compounds, thus causing excessive losses of the useful hydrocarbons.

The bleaching properties of sulphur dioxide in the gaseous form have been known for many years. It is under ordinary conditions of temperature and pressure a pungent colorless gas easily recognized by its familiar odor noticed when sulphur burns. When the temperature is lowered with slight increase of pressure the gas is converted into a pale yellow liquid, having a specific gravity somewhat heavier than that of water.

Doctor Edeleanu discovered the important fact that the selectivity of liquid sulphur dioxide toward different hydrocarbons is accelerated with reduction of temperature. Aromatic and unsaturated hydrocarbons are soluble in sulphur dioxide, both at relatively high and relatively low temperatures, but saturated hydrocarbons and naphthenes are only very slightly soluble at room temperature and practically not at all at 14° F., the boiling point of sulphur dioxide. The fact of this selective action of liquid dioxide, whereby the more useful hydrocarbons remain undissolved, is the fundamental principle of Doctor Edeleanu's discovery. Liquid sulphur dioxide does not appear to react in the same way that sulphuric acid does as a refining agent. In other words, there is not an energetic chemical reaction, but the sulphur dioxide acts quietly as a solvent for the removal of the impurities. The Edeleanu treating process is now used in all parts of the world. It is reported that the expense for treating some of the high refractory distillates is much less than with sulphuric acid and the treating loss is a fraction of 1 per cent.

As has been indicated, the treatment is conducted at lowered temperatures. The liquid sulphur dioxide is kept in a feed tank directly over the mixing chamber, which is built to operate at pressures up to 60 pounds to the square inch. The oil to be treated is charged into the unit and the proper percentage of liquid sulphur dioxide permitted to flow from the elevated tank, the sulphur dioxide being added until the oil is saturated and the application of acid continued until the aromatic substances are dissolved and separate as a distinct layer. As the aromatic substances are absorbed by the solvent, a brown color appear and as soon as a working level of this liquid is obtained, a part is drawn off and then the process of adding and drawing off becomes continuous. The temperature is regulated according to the particular kind of oil being purified, usually about 18° F., and the mixture mechanically stirred for approximately 20 minutes. The extract is drawn off into stills provided with steam coils, the heat from which separate the sulphur dioxide. These stills are generally operated under a vacuum. The next operation is to wash the treated kerosene with warm water or a weak alkaline solution to remove the trace of sulphur dioxide. While the original process was a batch operation the installation of recent years consists of a continuous system.

The liquid sulphur dioxide treatment has also been successfully applied to the treatment of special distillates for the manufacture of high grade lubricating oils, such as transformer and turbine oils.

A very recent suggestion has been made for the use of sulphur dioxide to remove sulphur from those natural gases containing large quantities of hydrogen sulphide. However, in this reaction it is probable that it may be more conveniently carried out with sulphur dioxide in the gas form. According to the theoretical equation sulphur dioxide acts on hydrogen sulphide to produce free sulphur and water. No doubt this form of treating gas is now receiving considerable attention with the prospect of successful installation being in operation in the very near future. The reaction appears to be a simple one, requiring merely the mixing of sulphur dioxide in quantities approximately equivalent to the hydrogen sulphide content to bring about the desired results. That is, the purification of the gas with the removal of the obnoxious odor and at the same time obtaining as a by-product pure sulphur.

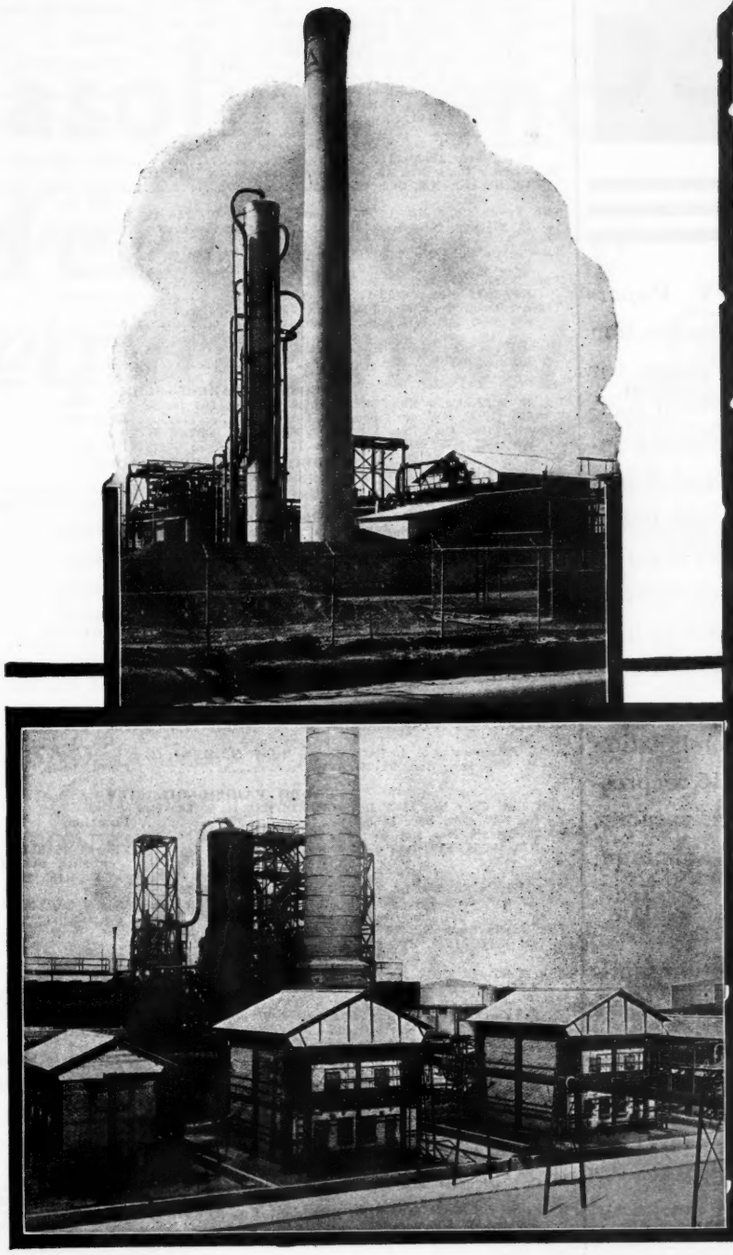
SOUTHWESTERN ALBERTA MOST POTENTIAL AREA

CHATHAM, Ontario, June 30.—Geological conditions and oil prospects in southwestern Alberta were discussed in an address recently delivered by Glen M. Ruby, president of the Nordon Corp., to the Canadian Institute of Mining and Metallurgy.

The speaker considered southwestern Alberta the most important potential area in western Canada. Structural conditions in the foothill belt were more like Appalachian folding than in any other district. A certain section of this area is underlain by a basin of Tertiary sediments which extends under a portion of the Rocky Mountains. This curious phenamenon is due to overthrust fault movements which have shifted the Palaeozic sediments easterly over the later Tertiary rocks. These basins are characteristic geological features of many of the most important oil fields.

Mr. Ruby predicted that should oil be produced in quantity in Alberta, the marketing of surplus gasoline would present a problem that could best be overcome by building a pipe line 1,200 miles in length to a point on the Great Lakes, which, on account of cheap water transportation, would eventually become the most important gasoline distributing center in America.

Referring to Turner Valley, the speaker stated that the life of wells in certain areas could now be fairly accurately estimated by the decrease in pressure as registered at some of the wells. The draining of one area, however, might be found to have no effect on the production of other wells in the neighborhood. The field is divided into a number of compartments by a series of transverse faults holding the oil and gas in its particular area.



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Empire Oil & Refining Co.
Texas Pacific Coal & Oil Co.
Associated Oil Co.
Pennzoil Company
Independent Refining Co.
Gulf Refining Co.
Tidal Refining Co.
Continental Oil Co.
Anglo-Mexican Petroleum Co. Ltd.
Cities Service Refining Co.
Barnsdall Corporation
Beacon Oil Company
Pierce Petroleum Corp.
Magnolia Petroleum Co. of Texas
New Orleans Refining Co.
Skelly Oil Co.
General Petroleum Corp.
Shell Oil Company
Freedom Oil Works Co.
Vacuum Oil Company
Richfield Oil Co.
Humble Oil & Refining Co.

SONS COMPANY

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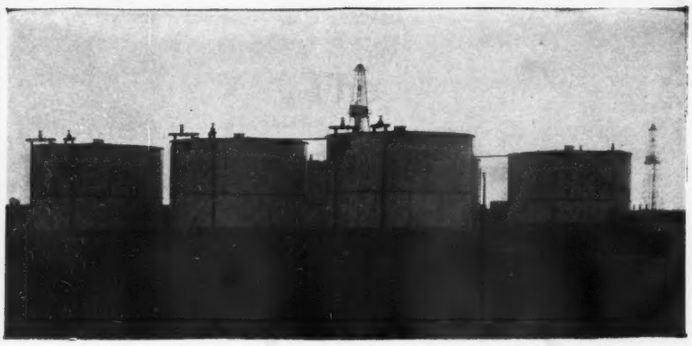

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MADE OF KEYSTONE AMERICAN COPPER STEEL

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LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 47)

Magnolia Pet. Co.'s No. 2 Matlock, 330 ft. S and W, NE cor. SE SW, Sec. 25-23-12.....W.O.S.R. 3,188 ft.

Magnolia Pet. Co.'s No. 3 Matlock, 330 ft. N, 330 ft. W, SE cor. SE SW, Sec. 25-23-12.....Cmtd. 8⅛-in. 3,132 ft; T.D. 3,179 ft.

Magnolia Pet. Co.'s No. 2 Roberson, 330 ft. S, 330 ft. E, NW cor. SW NE, Sec. 26-23-12.....Drlg. 2,330 ft.

Nat. Drlg. & Prod. Co.'s (was Lide et al's) No. 1 Matlock, 2970 ft. S, 990 ft. E, NW cor., Sec. 26-23-12....Tested S.W; show oil and gas 3,181 ft; recmtng. 6⅝-in. 3,140 ft.

Nat. Gas Prod. Co.'s No. 3 U. S. Govt., 1,520 ft. S, 2,580 ft. E, NW cor., Sec. 31-23-11.....Fishing D.S; T.D. 3,160 ft.

Palmer Corp.'s No. 2 Roberson, 330 ft. N, 330 ft. E, SW cor. NW NE, Sec. 26-23-12.....Derrick.

The Texas Co.'s No. 1 Peyton, 660 ft. N, 330 ft. E, SW cor., Sec. 30-23-11.....Coring 3,133 ft.

The Texas Co.'s No. 5 Peyton, 330 ft. N, 330 ft. W, SE cor., Sec. 25-23-12.....Waiting on power 3,162 ft.

The Texas Co.'s No. 1 Hy Rose, 940 ft. E, 450 ft. N, C, Sec. 31-23-11.....O.W.D.D; waiting on rig; T.D. 2,680 ft.

The Texas Co.'s No. 4 Hy Rose, 1,000 ft. N, 330 ft. E, C, Sec. 31-23-11.....Drlg. gray lime 2,335 ft.

The Texas Co.'s No. 10 Wilkinson, 250 ft. N, 330 ft. W. SE cor. NE, Sec. 36-23-12.....Began drlg. June 24; cmtd. 10-in. 328 ft.

The Texas Co.'s No. 11 Wilkinson, 990 ft. W, 230 ft. N, SE cor. NE, Sec. 36-23-12.....Cmtd. 6-in. 3,130 ft; cored sand 3,145-50 ft; T.D. 3,160 ft.

The Texas Co.'s No. 12 Wilkinson, 990 ft. W, 330 ft. S, NE cor., Sec. 36-23-12.....Derrick.

The Texas Co.'s No. 13 Wilkinson, 330 ft. S, 330 ft. W, NE cor., Sec. 36-23-12.....Location.

Tippett Drlg. Co.'s No. 3 Holmes, 330 ft. N, 330 ft. E, SW cor. NE NW, Sec. 36-23-12.....300 ft. oil in hole; waiting on power; T.D. 3,180 ft.

Woodley et al's No. 1 Roberson, 330 ft. N, 330 ft. W, SE cor. SW NE, Sec. 22-23-12.....Surface csg. collapsed; W.O; T.D. 1,500 ft.

BOSSIER PARISH—SLIGO

La. G. & F. Co.'s No. 7 Thigpen & Herold, 660 ft. N, 660 ft. E, SW cor., Sec. 19-17-11.....Location.

Woodley Pet. Co.'s No. 1 Schuler, 660 ft. N, 660 ft. E, SW cor. NW, Sec. 13-17-12.....Rig up.

CADDO PARISH—GREENWOOD

Ark.-La. P. L. Co.'s No. 1-B Brumble, 830 ft. S, 1,280 ft. E, NW cor., Sec. 18-16-16.....Cmtd. to 2,650 ft; bailed dry, no show; T.D. 3,580 ft.

Calatex O. & G. Co.'s No. 1 Edgar, 1,460 ft. S, 1,900 ft. E, NW cor., Sec. 17-16-16.....Location.

Calatex O. & G. Co.'s No. 1 McAnn-Alfred, 1,810 ft. S, 970 ft. E, NW cor., Sec. 17-16-16.....Location.

Calatex O. & G. Co.'s No. 1 Hudson, 2,395 ft. N, 660 ft. E, SW cor., Sec. 8-16-16.....Location.

Calatex O. & G. Co.'s No. 2 Taylor-Trosper, 45 ft. N, 1,220 ft. E, SW cor., Sec. 8-16-16.....Location.

CADDO PARISH—MOORINGSPORT

Falcon Oil Co.'s No. 1 Miller, 1,020 ft. N, 1,320 ft. E, SW cor., Sec. 29-20-15.....Location.

Falcon Oil Co.'s No. 4 Muslow, 200 ft. W, 1,270 ft. S, NE cor., Sec. 29-20-15.....Cmtd. 6-in. 2,026 ft.

Falcon Oil Co.'s No. 4 Nunnally, 3,004 ft. N, 3,150 ft. E, SW cor., Sec. 29-20-15.....Location.

Gulf Ref. Co.'s No. 4 Nunnally, Sec. 29-20-15.....Old T.D. 2,356 ft; W.O.S.R. 2,365 ft.

L. A. Wanen's No. 1 Barr Heirs, 1,851 ft. E, 67 ft. S, NW cor., Sec. 32-20-15.....Cmtd. 10-in. 41 ft; drlg. chalk 1,635 ft.

CADDO PARISH—OIL CITY

Gulf Ref. Co.'s No. 28-A Levee Board, 210 ft. S, 200 ft. E, NW cor., Sec. 34-21-16.....Location.

P. T. Mize's No. 1-A La. Oil Ref. Corp., 662 ft. N, 175 ft. E, SW cor., Sec. 6-20-15.....Flowed 15 bbls. through 6-in. after shot at 1,475 ft; W.O.S.R; T.D. 1,485 ft.

P. T. Mize's No. 2-A La. Oil Ref. Corp., 200 ft. N, 200 ft. E, SW cor., Sec. 6-20-15.....Began drlg. June 22; cmtd. 10-in. 40 ft; drlg. 280 ft.

The Texas Co.'s No. 73 Levee Board, 1,642 ft. E, 780 ft. N, SW cor. SW SE, Sec. 27-21-16.....Location.

DE SOTO PARISH—HOLLY

Ark. Fuel Oil Co.'s No. 2 Scott, 330 ft. N, 330 ft. E, SW cor. SE NE, Sec. 32-14-13.....Swbd. 35 bbls. oil, 20 bbls. S.W. 2,781 ft; W.O.S.R. 2,790 ft.

W. C. Clark et al's No. 1 Nabors, NW cor. SE NW, Sec. 17-13-13.....Drlg. 1,200 ft.

Lacy Oil Co.'s No. 1 G. W. Sample, 300 ft. S, 300 ft. W, NE cor. NW NE, Sec. 1-13-14.....Reaming to bottom; T.D. 2,235 ft.

Frank Melat, Inc.'s No. 1 Schryver, 175 ft. E, 175 ft. N, SW cor. NW SW, Sec. 35-14-13.....Drlg. lime 2,730 ft.

Standard Oil Co.'s No. 2-A Farmer, 1,650 ft. N, 330 ft. E, C, Sec. 5-13-13.....Cmtd. 7-in. 2,848 ft; 10-ft. sand; T.D. 2,858 ft.

Standard Oil Co.'s No. 1-D Farmer (was R. O. Roy's), 330 ft. N, 330 ft. E, SW cor. SE, Sec. 32-14-13.....Derrick.

LA SALLE PARISH—URANIA

W. O. Clark's No. 1-B Russell, Sec. 25-10-1e.....Began drlg. June 19; cmtd. 10-in. 103 ft; drlg. 700 ft.

Montugu Oil Co.'s No. 8 Zenoria Lbr. Co., 710 ft. S, 250 ft. W, NE cor., Sec. 10-9-1e.....Cmtd. 6⅝-in. 1,499 ft; W.O.S.R. 700 ft. oil; 700 ft. S.W; T.D. 1,510 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4.....Location.

J. S. Herkness' No. 12 Bowles, 3,392 ft. E, 3,300 ft. S, NW cor., Sec. 18-20-5.....Drlg. red beds 3,080 ft.

Industrial Gas Co.'s No. 1 fee, 1,980 ft. S, 660 ft. W, NE cor., Sec. 3-20-4.....Began drlg. May 16; cmtd. 12½-in. 143 ft; 9-in. 848 ft.

La. G. & F. Co.'s No. 26 Crossett, 645 ft. E, 574 ft. S, NW cor. Lot 9, Sec. 33-21-5.....Began drlg. May 16; S.D. high wtr; T.D. 75 ft.

Southern Carbon Co.'s No. 56 fee, 660 ft. S, 660 ft. E, NW cor. NW, Sec. 15-20-4.....Rig up.

United Carbon Co.'s No. 2 Patton, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 2-20-4.....Cmtd. 6-in. 2,105 ft.

OUACHITA PARISH

Amalgamated Co.'s No. 1-B Kate Cole, 660 ft. N, 660 ft. E, SW cor. NE SW, Sec. 25-20-4.....Rig up.

Ark.-La. P. L. Co.'s No. 4 McEnery, 1,320 ft. N, 760 ft. E, SW cor., Sec. 29-19-4.....Rig up.

Carbon Consolidated, Inc.'s No. 5 Guthrie (was United Oil & Nat. Gas Co.'s No. 5 Guthrie), 6,634 ft. N, 7,078 ft. W, cor. Secs. 49, 25 and 26, in Sec. 50-20-4..Derrick.

Hope Prod. Co.'s No. 4 Fairbanks, 616 ft. W, 623 ft. S, NE cor., Sec. 36-20-4.....Began drlg. June 22; cmtd. 12½-in. 156 ft.

Jordan Drlg. Co.'s No. 7 Cole, 265 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4.....Location.

Jordan Drlg. Co.'s No. 1 J. F. Parker, 950 ft. N, 485 ft. W, cor. Secs. 41, 9 and 16, in Sec. 41-18-4.....Location.

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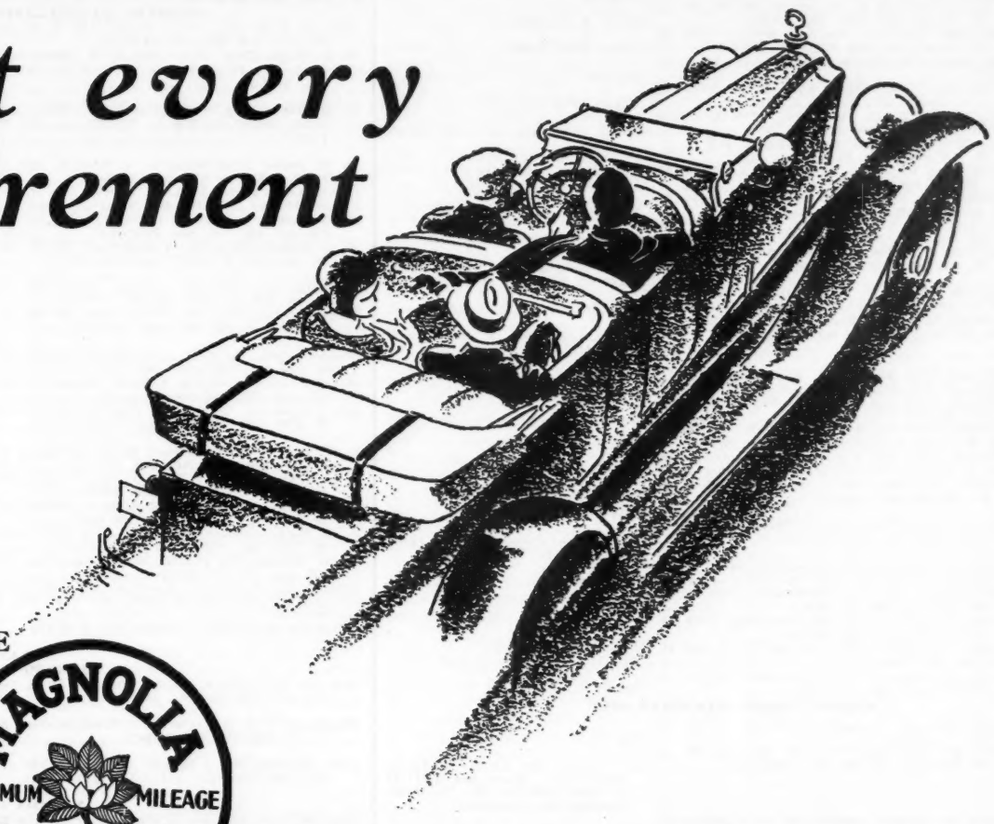

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Magnolia Fuel Oil Loading Stations at Beaumont, Corsicana, Sabine, Galveston, Fort Worth, Harbor Island, Luling, Corpus Christi, Dallas, Herma, Arkansas; Mirando.

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MAGNOLIA STATIONS AND DEALERS THROUGHOUT THE SOUTHWEST

Jordan Drlg. Co.'s No. 2 Pereboom, 1,207 ft. W, 264 ft. S, C, Sec. 9-18-4.....Location.
Jordan Drlg. Co.'s No. 1 School, 216 ft. S, 244 ft. W, NE cor. NW, Sec. 16-18-4.....Location.
La. G. & F. Co.'s No. 3 Breard, S 9° 734 ft., S 81° E 594 ft., NW cor., Sec. 44-18-4.....S.D. high wtr; T.D. 1,300 ft.
Ouachita Nat. Gas Co.'s No. 13 Smith, 5,684 ft. E, 8,-148 ft. N, NW cor., Sec. 38 in Sec. 37-20-4.....Cmtd. 6-in. 2,097 ft.
Pipes & Mack's No. 1 Union Gas Products Co., Inc., 1,598 ft. W, 397 ft. N, SE cor. SW, Sec. 7-18-5.....Tested dry 2,460 ft; W.O. 2,500 ft.
Pipes & Mack's No. 2 Union Gas Products Co., 296 ft. W, 528 ft. N, SE cor. SW, Sec. 7-18-5.....Location.
United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4.....Location.
United O. & N. G. Co.'s No. 2 Cole, 660 ft. S, 594 ft. E, C, Sec. 26-20-4.....Derrick.

RICHLAND PARISH

W. C. Feazel's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6.....Rig up.
Franklin O. & G. Co.'s No. 1 Thompson, 660 ft. N, 165 ft. W, SE cor. NE, Sec. 14-16-6.....Location.
Industrial Gas Co.'s No. 1 Lyles, 1,314 ft. N, 520 ft. E, SW cor., Sec. 23-16-6.....Cmtd. 6-in. 2,300 ft.
International Gas Prod. Co.'s No. 1 Minnie LaGrone, 769 ft. N, 358 ft. E, SW cor., Sec. 7-16-7.....Location.
La. G. & F. Co.'s No. 1-C McCoy, 872 ft. W, 1,749 ft. N, SE cor., Sec. 8-16-6.....Derrick.
La. G. & F. Co.'s No. 1-D D. R. Sartor, 660 ft. W, 1,-320 ft. N, SE cor. SW SW, Sec. 9-16-6.....Cmtd. 6-in. 2,299 ft.
Northern La. Nat. Gas Co.'s No. 4-B McCoy, 1,445 ft. N, 734 ft. W, SE cor. SW SE, Sec. 17-16-6.....Cmtd. 6-in. 2,300 ft.
Palmer Corp.'s No. 1-B Boykin, 177 ft. S, 787 ft. E, C, Sec. 33-17-6.....Derrick.
Palmer Corp.'s No. 1 Newberry, 3,296 ft. N, 2,640 ft. W, SE cor., Sec. 2-16-6.....Began drlg. June 24.
Palmer Corp.'s No. 1 N. D. Thomason, 1,320 ft. S, 660 ft. E, NW cor. NW, Sec. 22-16-6.....Cmtd. 12-in. 166 ft; 9-in. 914 ft.
Pelican Nat. Gas Co.'s No. 1 M. Chapman, 660 ft. N, 660 ft. E, SW cor., Sec. 14-16-6.....Cmtd. 6-in. 2,304 ft.
Richland Operating Co.'s No. 2 Godfrey, 1,980 ft. N, 1,122 ft. E, SW cor., Sec. 25-16-6.....Drlg. 2,430 ft.
Richland Prod. Co.'s No. 1 Ball, 2,050 ft. S, 1,980 ft. W, NE cor., Sec. 22-16-6.....Drlg. 1,680 ft.
Southern Carbon Co.'s No. 1 Hallock, 3,300 ft. N, 760 ft. W, SE cor., Sec. 2-16-6.....Drlg. 2,275 ft.
Southern Carbon Co.'s No. 1-B Hallock, 1,622 ft. N, 990 ft. W, SE cor. NW, Sec. 1-16-6.....Began drlg. June 12; cmtd. 12-in. 185 ft; 8-in. 865 ft.
Southern Carbon Co.'s No. 1 H. H. Hemler, 660 ft. N, 1,435 ft. E, SW cor., Sec. 1-16-6.....Location.
Southern Carbon Co.'s No. 1-B J. H. Hemler, 619 ft. N, 5,024 ft. E, SW cor., Sec. 1-16-6.....Began drlg. June 18; cmtd. 12-in. 185 ft; 8-in. 865 ft; drlg. 1,-820 ft.
Southern Carbon Co.'s No. 1-C M. L. McCoy, 1,880 ft. N, 2,871 ft. E, SW cor., Sec. 1-16-6.....Drlg. 2,210 ft.
Southern Carbon Co.'s No. 2-C M. L. McCoy, 1,880 ft. N, 5,024 ft. E, SW cor., Sec. 1-16-6.....Location.
Southern Carbon Co.'s No. 5 F. B. and E. A. Sartor, 1,156 ft. E, 531 ft. S, NW cor. SW, Sec. 19-16-6.....Location.
Southern Carbon Co.'s No. 6 F. B. and E. A. Sartor, 2,640 ft. N, 2,031 ft. W, SE cor., Sec. 24-16-5.....Location.
Southern Carbon Co.'s No. 1-C T. R. Sartor, 660 ft. S, 660 ft. W, NE cor., Sec. 29-16-6.....Began drlg. June 20; cmtd. 12-in. 185 ft; drlg. 400 ft.
Southern Carbon Co.'s No. 1 H. L. Thomason, 660 ft. N, 660 ft. E, SW cor., Sec. 2-16-6.....Began drlg. June 20; cmtd. 12-in. 190 ft; 8-in. 788 ft.
Southern Carbon Co.'s No. 1-B Thomason et al, 2,310 ft. W, 100 ft. S, NE cor., Sec. 23-16-6.....Location.
Southern Carbon Co.'s No. 1-C Thomason, 1,980 ft. N, 660 ft. W, SE cor., Sec. 14-16-6.....Location.
United Carbon Co.'s No. 1 E. W. Dunning, 1,270 ft. S, 660 ft. W, NE cor., Sec. 26-16-6.....Cmtd. 8-in. 784 ft.
United Carbon Co.'s No. 2 Mitchell, 660 ft. S, 660 ft. W, NE cor., Sec. 20-17-6.....Drlg. 2,427 ft.
United Carbon Co.'s No. 1 H. L. Thomason, 1,980 ft. S, 665 ft. E, NW cor., Sec. 11-16-6.....Location.

SABINE PARISH—PLEASANT HILL

Ark. Fuel Oil Co.'s No. 14 Logan, 1,035 ft. N, 241 ft. W, C, Sec. 33-10-12.....Rig up.
Bridges-Clark Oil Co.'s No. 2 J. W. Guy, 330 ft. S, 330 ft. W, NE cor. SE SE, Sec. 33-10-12.....Set 6⅝-in. and packer 2,420 ft; tested dry; show gas 2,427-32 ft. and 2,447 ft; T.A. 2,447 ft; rigging up to deepen.
F. A. Bartlett, Jr.'s No. 1 Logan, 200 ft. S, 200 ft. E, NW cor., Sec. 27-10-12.....Rig up.
Standard Oil Co.'s No. 2 Ives, 330 ft. N, 330 ft. E, SW cor. SE SW, Sec. 34-10-12.....Drlg. hard lime 3,278 ft.

SABINE PARISH—ZWOLLE

Central Pet. Co.'s No. 1 Baptist Church (was No. 1 Wall), Zwolle townsite in Sec. 31-8-12.....Bailed dry 2,580 ft; bailing to test 2,590 ft.
Tom Davis' (was T. D. Allison's) No. 1 Holliday, Sec. 31-8-12 Zwolle townsite .....S.D. wtr. 1,350 ft.
Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 4 Bowman-Hicks, 330 ft. N, 330 ft. W, C, Sec. 34-8-12 .....S.D. 2,669 ft.
Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 5 Bowman-Hicks, 900 ft. S, 1,400 ft. W, C, Sec. 34-8-12 .....Cored lime 3,915-25 ft; show oil and gas; cmtd. 6¼-in. 3,904 ft.
Loring Oil Co.'s No. 8 Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor. SW SE, Sec. 33-8-12.....Cmtd. 6⅝-in. 2,460 ft; T.D. 2,-500 ft.
Loring Oil Co.'s No. 9 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. NE SE, Sec. 34-8-12.....W.O.S.R. 1,200 ft. oil; T.D. 2,-518 ft.
Loring Oil Co.'s No. 10 Bowman-Hicks, 330 ft. N, 330 ft. E, SW cor. NE SE, Sec. 33-8-12.....Cmtd. 6⅝-in. 2,395 ft.
Loring Oil Co.'s No. 11 Bowman-Hicks, Sec. 34-8-12.....Derrick.
Loring Oil Co.'s No. 1 Gardner, 330 ft. N, 330 ft. W, SE cor. NE, Sec. 27-8-12.....Rig up.
Loring Oil Co.'s No. 1 Schull, 330 ft. S, 330 ft. E, NW cor. SW, Sec. 26-8-12.....Began drlg. June 18; cmtd. 10-in. 106 ft; drlg. 1,659 ft.
Glassell & Merren's No. 1 Thomas, Lot 13, Block 3, Zwolle townsite, Sec. 31-8-12.....Oil show; S.D; W.O. 2,600 ft.
H. E. Granville's No. 1 Parrott, 1,052 ft. S, 661 ft. E, NW cor., Sec. 31-8-12.....W.O.S.R. 2,520 ft.
F. M. Hood's No. 1-B (was No. 2) Winston, 700 ft. E, 425 ft. S, NW cor., Sec. 31-8-12, Zwolle townsite....S.D. 1,065 ft.
Ohio Oil Co.'s No. 5 Bowman-Hicks, 330 ft. N, 330 ft. E, SW cor., Sec. 33-8-12.....Rig up.
Olson Bros.' No. 2 Boone-Ferguson, 330 ft. N, 330 ft. W, SE cor. NW SE, Sec. 33-8-12.....Rig up.
W. D. Perritt et al's No. 1 Elliott, Sec. 30-8-12.....(No check); location.
Philp Bros.' No. 1 Dow, Lot 1, Blk. 18, Zwolle townsite, Sec. 31-8-12.....Dry 2,157 ft. and 2,240 ft; W.O.
Posey et al's No. 1 Peterson, Blk. 16, Zwolle townsite, Sec. 31-8-12.....S.D. 250 ft.
Ruston Drlg. Co.'s No. 1 Bowman-Hicks, 330 ft. S, 330 ft. W, NE cor., Sec. 4-7-12.....T.A. 2,640 ft.
Ruston Drlg. Co.'s No. 1-A Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor. SW SW, Sec. 35-8-12.....T.A. 2,690 ft.
Stovall Drlg. Co.'s No. 1 Lefkovitz, 247 ft. N, 250 ft. W, SE cor. NE SE SW, Sec. 33-8-12.....Did not shoot formation 2,738 ft; S.D. waiting on test of Loring Oil Co.'s No. 5 Bowman-Hicks; T.D. 3,020 ft.
A. H. Tarver's No. 3 Sabine State Bank, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 26-8-12.....Location.
Wheatcroft et al's No. 1 Sabine Lbr. Co., SW NE, Sec. 31-8-12 .....Cmtd. 6⅝-in. 2,161 ft; top chalk 2,165 ft.
Wilder et al's No. 1 Parrott, Sec. 31-8-12.....Drlg. 2,160 ft.

SABINE PARISH—BLUE LAKE

R. L. Gay's No. 2 Bowman-Hicks, Sec. 18-7-13.....Bailed dry 2,494 ft; T.A.
Ruston Drlg. Co.'s No. 1-B Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor., Sec. 24-7-14.....Tested dry 2,470 ft; T.A.

UNION PARISH

Greenwood Prod. Co.'s No. 2 Norsworthy, 1,320 ft. S, 1,999 ft. E, NW cor., Sec. 9-21-3.....Rig up.
Nemours Corp.'s No. 1 Digby, 201 ft. S, 919 ft. W, NE cor. NW, Sec. 11-20-3.....Cmtd. 6-in. 2,075 ft.
Nemours Corp.'s No. 1 Hollis, 1,989 ft. E, 660 ft. S, NW cor., Sec. 15-21-3.....Location.
Stevenson, trustee's No. 1 Stephenson, 150 ft. N, 120 ft. E, SW cor. NE NW, Sec. 11-20-3.....Drlg. shale and boulders 2,025 ft.
Stovall Drlg. Co.'s No. 1 Murray, 1,650 ft. N, 330 ft. W, SE cor. SW, Sec. 32-23-4.....Rig up.
J. P. White's No. 1 Howard, 660 ft. S, 660 ft. W, NE cor., Sec. 32-20-3e .....Cmtd. 8-in. 781 ft.

WEBSTER PARISH—SAREPTA AND SHONGALOO

Ideal O. & G. Co.'s No. 1 Coyle, 300 ft. N, 300 ft. E, SW cor. SW SE, Sec. 24-23-11.....Derrick.
H. M. Jones Drlg. Co.'s (was E. W. Bateman's) No. 1 Cook, 200 ft. S, 200 ft. W, NE cor. S½ SW NE, Sec. 2-22-11 .....W.O.S.R; 1,500 ft. fluid, 50% S. W; T.D. 2,733 ft.
H. M. Jones Drlg. Co.'s (was E. W. Bateman's) No. 2 Cook, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 2-22-11 .....Began drlg. June 19; cmtd. 10-in. 291 ft; S.D.
H. M. Jones Drlg. Co.'s No. 1 Womble, 860 ft. S, 200 ft. E, NW cor. SW, Sec. 1-22-11.....Derrick.
Glenn Kahle's No. 1 E. B. Taylor, 182 ft. N, 137 ft. W, SE cor. SE NE, Sec. 35-23-11.....Derrick.
K. C. Supply Co.'s No. 2 Slack, 1,006 ft. N, 192 ft. W, SE cor. SE SW, Sec. 36-23-11.....Cmtd. 6-in. 2,724 ft; T.D. 2,737 ft.
K. C. Supply Co.'s No. 1 Cochrane, 330 ft. N, 330 ft. W, SE cor. E½ NW, Sec. 36-23-11.....Tested estimated 10,000,000 ft. of gas; fishing baller; T.D. 2,725 ft.
Magnolia Pet. Co.'s No. 2 Sally Coyle, 150 ft. N, 150 ft. W, SE cor. SE NE, Sec. 2-22-11.....Location.
Magnolia Pet. Co.'s No. 1 Gardner, 175 ft. N, 230 ft. E, SW cor. SE NW, Sec. 1-23-11.....Swbng. 15 bbls. oil, 150 bbls. S.W; T.D. 2,727 ft.
Magnolia Pet. Co.'s No. 4 Scroggins, 150 ft. N, 150 ft. E, SW cor. SW NW, Sec. 1-22-11.....Location.
Merrick Oil Corp.'s No. 3 Slack, 330 ft. N, 330 ft. W, SE cor. SW SE, Sec. 36-23-11.....Derrick.
Mt. Vernon Oil Co.'s No. 3 Pardee, 200 ft. S, 1,500 ft. E, NW cor. NE SW, Sec. 3-22-11.....1,400 ft. fluid; 6-ft. sand; W.O. S.R; T.D. 2,653 ft.
S. H. Riggs, trustee's No. 1 L. & A., 250 ft. S, 530 ft. E, NW cor. NW NE, Sec. 1-22-11.....S.D. 2,100 ft.
S. H. Riggs, trustee's No. 2 L. & A., 255 ft. S, 600 ft. W, NE cor. SW NE, Sec. 36-23-11.....Derrick.
S. H. Riggs, trustee's No. 3 L. & A., 255 ft. N, 600 ft. W, SE cor. NW SE, Sec. 36-23-11.....Location.
S. H. Riggs, trustee's No. 4 L. & A., 255 ft. S, 600 ft. W, NE cor. NW SE, Sec. 36-23-11.....Location.
W. O. Neely's No. 1 J. R. Slack, 150 ft. N, 150 ft. E, SW cor., Sec. 12-22-11.....Location.
Sarepta Oil Co.'s No. 2 Gardner, NE SW, Sec. 1-22-11..Rig up.
Sarepta Oil Co.'s No. 1 Slack, SW cor. NW NE, Sec. 36-23-11 .....Rig up.
Wingfield et al's No. 2 Slack, Sec. 1-22-11.....(No check); began drlg. June 20; cmtd. 10-in. 120 ft; drlg. 320 ft.

ARKANSAS
JOHNSON COUNTY

Ark.-La. P. L. Co.'s No. 1 Cline, 660 ft. S, 660 ft. W, NE cor. NE SE, Sec. 16-10-24.....Arranging to cmt. 13⅜-in. 1,-550 ft.
Blackwell O. & G. Co.'s No. 1 Western Coal & Mining Co., C NE SE, Sec. 20-9-25.....Arranging to cmt. 8¼-in. 1,-160 ft.
Conn Grable's No. 1 Hoeing, 720 ft. N, 590 ft. W, SE cor., Sec. 20-9-25 .....Began drlg. June 18; cmtd. 10-in. 100 ft; 8¼-in. 1,160 ft.

NEVADA COUNTY

Roy Davis et al's No. 1 Chas. Henry, 1,120 ft. N, 1,-120 ft. W, SE cor., Sec. 10-12-20.....Rig up.
C. F. Steele's No. 1 E. W. Groves, Sec. 21-14-20.....S.D. 2,310 ft.

OUACHITA COUNTY—SMACKOVER

J. D. Reynolds' No. 4 Berg, 300 ft. S, 180 ft. W, NE cor. SE SW, Sec. 27-15-15.....W.O.S.R; 400 ft. fluid; T.D. 1,-058 ft.

OUACHITA COUNTY—STEPHENS

Magnolia Pet. Co.'s No. 1 Grayson, 230 ft. S, 540 ft. W, NE cor. Lot 31, Sec. 21-15-19.....O.W.D.D; completed March 19, 1930; produced 100 bbls. oil, 225 bbls. S.W. 1,480 ft; cored sand showing oil 2,123 ft.

UNION COUNTY—CHAMPAGNOLLE

Lion Oil Ref. Co.'s No. 2 Kelly, Sec. 9-17-14.....O.W.D.D; completed Apr. 4, 1929; 6,800,000 ft. gas 2,822 ft; perforated csg. 2,735-60 ft; arranging 4½-in. csg. 3,166 ft; cored S.W. sand 3,171-84 ft; T.D. 3,-195 ft.
Sundby et al's No. 2 Perdue, 75 ft. S, 150 ft. E, NW cor., Sec. 33-16-14.....Cored S.W. sand 3,020-26 ft; drlg. hard lime 3,079 ft.

UNION COUNTY—EL DORADO

H. L. Hunt's No. 6 Pratt, 150 ft. N, 330 ft. E, SW cor. NE NE, Sec. 7-18-15.....S.W. 2,214 ft.
Malloy & Co.'s No. 1 Murphy, Sec. 1-18-16.....Rig up; W.O.
Malloy & Co.'s No. 3 Robertson, NE cor. S½ SW NE, Sec. 6-18-15 .....Location.

EAST TEXAS
HARRISON COUNTY

Calatex O. & G. Co.'s No. 6 Agurs, 755 ft. N, 699 ft. W, Mile Post 27, in J. Womack Sur.....Location.
Shell Rock Pet. Co.'s No. 1 Oliver Dougherty, W. D. Burris Sur. .....Sidetracking bit; T.D. 3,441 ft.

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 2-A G. W. Brumble, 477 ft. W, 473 ft. S, NW cor. Jno. Womack Sur. in B. C. Jordan Sur. .....Drlg. hard lime 2,825 ft.
Jackson et al's No. 1 Dunham, 150 ft. W, 150 ft. N, SE cor. M. I. Dunham 29 ac., in Chas. Haley Sur. ..Rig up.
Nat. Gas Products Co.'s No. 3 Tom Moore, 889 ft. E, 7,928 ft. S, NW cor. B. C. Jordan Sur. .....Cmtd. 10-in. 1,326 ft; drlg. chalk 1,400 ft.
The Texas Co.'s No. 9 G. W. Brumble, 2,570 ft. E, 180 ft. S, SW cor. E. F. Mitcheson Sur. in Jno. Womack Sur. .....Began drlg. June 18; cmtd. 10-in. 23 ft; drlg. 1,700 ft.
Doris Thomason's No. 15 Crenshaw, 1,992 ft. S, 2,305 ft. E, SW cor. Jno. Womack Sur. in B. C. Jordan Sur. .....Derrick.

CALIFORNIA FIELDS

(Continued from Page 53)

tinental has abandoned its third deep test in the Carpinteria area as a duster at 5,732 feet. The log of this well indicates that the structure at Carpinteria is plunging toward the ocean as this project, located on tideland drilling permit No. 124, correlates considerably deeper than the first two wells located on the Bailard Ranch. The abandonment of this wildcat is of special interest because the Continental has several adjoining tideland permits upon which validation work has recently been completed by the drilling of several post holes to approximately 1,000 feet.

Playa Del Rey

Two new wells were put on production in the Playa Del Rey Field of Los Angeles Basin during the past week, giving the field five producing wells at the present time. The Mohawk started off the week by completing No. 1 Jay flowing 300 bbls. of 21.7 gravity oil per day from 3,842 feet, the hole having been plugged back from 3,866 feet and finished with an 8⅝-inch water string set at 3,472 feet. The Allied Petroleum Corp. subsequently completed No. 1 Del Rey at 3,875 feet. This well was swabbed for production early in the week but failed to have a sufficient kick to result in a natural flow. It was accordingly put on a compressor and looks good for approximately 150 bbls. per day, although the output may subsequently build up. The top of the lower zone was encountered in this well at 3,520 feet or approximately 135 feet lower than the same zone was logged in the Mohawk's new completion.

No. 2 Dickinson, of the Ohio, finished in the deep zone a short time ago at 6,324 feet, failed to maintain a sustained flow and may require a cleanout job especially in view of the fact that the installation of a compressor was to no avail. This leaves the Ohio with two producing projects at Playa Del Rey, both of them located on the Recreation lease. No. 1 is flowing 1,250 bbls. per day at the present time while No. 2 is flowing 1,220 bbls. every 24 hours. A. T. Jergins' No. 1 Robertson, finished a short time ago in the shallow Del Rey sand at 3,905 feet, failed to maintain a natural flow and is at the present time pumping 210 bbls. of 21.2 gravity oil daily. The Deuel Petroleum's recent completion in the deep zone at 6,142 feet has been beaned back to approximately 400 bbls. per day. The Star Petroleum's No. 1 Venice is holding up in good shape, current production approximating 2,225 bbls. of clean 22.9 gravity oil daily. No. 2 Venice of the Star Petroleum is scheduled to be given an early production test as this well is at the present time rotating ahead in the oil sand with completion scheduled in the deep zone. The Union is preparing to core ahead in No. 1 Del Rey in order to determine the thickness of the shallow zone at this point.

Santa Fe Springs

Only two wells were put on production in the Santa Fe Springs Field during the past week and, while recent completions have been somewhat unsatisfactory because of their small initial daily production, the Union's No. 41 Bell, a current completion, registered substantial production. This new well, bottomed at 6,865 feet with a 6⅝-inch water string landed and cemented at 6,295 feet, tanked 675 bbls. in the first 15 hours following completion and is at the present time flowing 963 bbls. per day. The Standard is listing No. 14 Santa Gertrudes for completion doing 140 bbls. per day from the Clarke zone at 7,940 feet after working on it for the past several weeks. Drilling operations in the Santa Fe Springs Field, which are growing less numerous from week to week, will result in fewer completions in the future although a check indicates the probable completion of several new wells shortly.

Drilling operations in the Long Beach Field were not productive of any new wells during the past week, although several drilling projects are nearing the production stage. Dabney & Johnston put No. 66 Signal on a production test at 6,748 feet but this new well failed to result in satisfactory production as the output, 75 bbls. per day, is cutting approximately 40 per cent. The Sunset Pacific Oil Co. added a new well to its list of producers in the Potrero Field by recompleting No. 3 Inglewood flowing 460 bbls. of 39.2 gravity oil per day from 5,370 feet. Drilling operations in this area have shown a consistent increase during the past several weeks and should within a short time exceed the amount of work under way at Santa Fe Springs unless something unforeseen develops. The Barnsdall chalked up another successful completion in the Rosecrans Field of Los Angeles basin by recompleting No. 6 O'Dea flowing 390 bbls. of 39.2 gravity oil per day after redrilling and deepening it to 5,284 feet. The Barnsdall has no other work under way in this field at the present time but will be obliged to start a new hole on the Trust lease shortly. The Union spudded in No. 15 Rosecrans during the past week, bringing its total number of drilling projects in this field up to four. The Standard, with five drilling wells under way in the West Coyote Field, is making preparations to finish No. 46 Emery.

Elwood

The Barnsdall and Rio Grande successfully completed No. 15 Bell Luton, a new well in the Elwood Field of Santa Barbara County, and incidentally increased their current daily production 2,053 bbls., the oil being exceptionally clean and testing 36.5°. This well was bottomed at 3,356 feet with a 10¾-inch water string landed at 3,061 feet and the hole finished with a 6⅝-inch oil string carrying 315 feet of perforated. Although drilling operations in this field have been severely reduced, several additional completions may be anticipated within the next 30 days. In the Ventura Avenue Field the Shell's No. 44 Taylor blew in flowing 1,370 bbls. per day from 7,111 feet but the output from this new well is cutting approximately 50 per cent, indicating the possibility of a defective water shut-off and the probability that additional work will be undertaken. Based on the present status of drilling operations, several additional completions may be anticipated in the Ventura Avenue Field within the next 30 or 60 days.

The Doyle-Clune Oil Co. recompleted No. 1 Son in the Maricopa Flats section of the Midway-Sunset Field and this rejuvenated well, which failed to come back under a natural flow, was finished on the pump doing 298 bbls. of unusually clean 22.4 gravity oil daily from 3,820 feet. The Standard Oil Co.'s No. 47-K in Section 9-11-23 was good for 35 bbls. of 21.6 gravity oil per day upon completion at 3,828 feet. Out in the West Front section of the Kern River Field, the Chanslor-Canfield Midway Oil Co. finished No. 34 in Section 23-28-27 doing 230 bbls. per day on the beam from 2,230 feet. In the Mount Poso Field, the Barrett Oil Co. finished No. 4 Dominion on the pump doing 101 bbls. per day from 1,521 feet, the hole having been finished with an 8⅝-inch liner carrying 55 feet of perforated. In the Weed Patch area of Kern County, the Shell has landed and cemented a string of 11¾-inch in No. 1 Porter Day at 4,890 feet and this wildcat, which shows exceptional promise, is scheduled to be tested out some time within the next 10 days.

PRODUCTION INFLUENCED BY PIPE LINE OUTLETS

(Continued from Page 30)

be said that the 441,500-bbl. capacity, while more than large enough to transport all the permitted production in the field, is not so placed that every one of the fields is overprovided with pipe lines. The Hendricks Pool has a pipe line capacity of 284,000 bbls., or three times more than it needs, while the Yates area with a potential production of 1,000,000 bbls. a day or more, had a pipe line capacity at the beginning of this year of 175,000 bbls., which was more than the field was permitted to produce at any time since it was opened. The Howard-Glasscock County Pools were provided with 57,000 bbls. of pipe line capacity, but the field has been under curtailment and its 500 oil wells have not been permitted to test the capacity of the pipe lines serving the area, although they could easily have surpassed it had the field been unrestricted.

The Church-Fields Pool in Crane and Upton Counties was provided with 114,000 bbls. of pipe line capacity, but all Crane and Upton County pools are now producing only about 45,000 bbls. per day. This area has great potentialities, however, and it may be that the future will see the time when all the pipe line capacity will be needed.

Holding in the Yates Pool

The Yates Pool in Pecos County, West Texas, is one of the wonder pools of the world. To the writer's knowledge no well in the field has been permitted to flow a full 24 hours. It is certain that none of the very large wells have been left open more than an hour or two. Wells have been brought in that have flowed for say an hour at the rate of 240,000 bbls. a day, and estimates of what the field could do if all the completed wells were opened run as high as 5,000,000 bbls. per day. Of course it is not thought that this volume of production could be kept up for any length of time as the gas pressure would soon be exhausted. But, even granting the field a 1,000,000-bbl. potential for a limited period, there would be no place for the oil to go but on the ground as the pipe line capacity into that field is only 175,000 bbls. and the permitted daily production is only around 115,000 to 120,000 bbls., which includes all the pools in Pecos County.

The Yates Pool thus far is served by the following lines: Gulf Pipe Line Co.'s 6 and 8-inch to Church-Fields, 20,000 bbls.; Humble Pipe Line Co.'s 6 and 8-inch to Kemper, 40,000 bbls.; Illinois Pipe Line Co.'s 8-inch to McCamey, 14,000 bbls.; same company's 6-inch to the Hurdle tank farm, 12,000 bbls., and its 8-inch looped line to Del Rio, 60,000 bbls., and the Shell Pipe Line Corp.'s 8-inch gravity line to its main line 3½ miles distant, 25,000 bbls. One, two or three Yates P[illegible] wells opened wide could fill all the pipe line capacity the field has for a little while, at least.

May Need Them All

The Hendricks Pool in Winkler County, Texas, has more pipe lines than it has oil, so to speak. Winkler County is producing about 85,000 bbls. a day. Two of the 10 lines serving that field could handle all the present production. The Atlantic Pipe Line Co.'s 10-inch line from the Hendricks Pool to Midland has a capacity of 50,000 bbls. per day and the Humble Pipe Line Co. has an 18-inch line from the field to Monahans with a capacity of 40,000 bbls. a day. In addition to these, however, the field is furnished with the following lines: American Petroleum Co.'s 6-inch line to the Texas & Pacific Railroad 23 miles distant, capacity 12,000 bbls.; Atlantic Pipe Line Co.'s 8-inch line to Monahans, 25,000 bbls.; Burford Pipe Line Co.'s 6-inch line to Pecos, 2,500 bbls.; Gulf Pipe Line Co.'s 8 and 10-inch to Midland, 20,000 bbls.; Humble Pipe Line Co.'s 6-inch to a main line connection, 15,000 bbls.; Magnolia Pipe Line Co.'s 10-inch to Midland, 20,000 bbls., and the Paso-Tex Pipe Line Co.'s 8-inch to El Paso, 20,000 bbls., a grand total of 204,500 bbls. carrying capacity for a field that cannot produce 100,000 bbls.

But it may prove that the laying of all these lines was not in vain. One may stand on the knoll on which the town of Jal, Lea County, New Mexico, stands and look over on the Hendricks Pool in the hazy southern distance. Lea County is regarded as one of the great potential fields of the near future. It has been prophesied that within four months the Hobbs Field alone will have a potential of 200,000 bbls. a day. To provide the Lea County fields with adequate pipe line facilities is merely a matter of extending the lines that now run into Winkler County, northward to the pools in Lea County. The two counties adjoin. The case of Hobbs and other Lea County fields is like that of Powell and Wortham. A comparatively inexpensive campaign of extensions which would not consume two weeks' time in the ditching and laying will provide Lea County with crude outlets. The Humble Pipe Line Co. already has a line into Hobbs and the Atlantic Pipe Line Co. is building one.

An Embarrassment of Lines

The big fields of California are adequately provided with pipe lines. Santa Fe Springs and Long Beach are old fields. Pipe lines were built into those fields in their first flush days and when the recent increase in production came from deeper sands the pipe lines were in a position where they had to take whatever oil was produced.

At its peak early in January of this year, Santa Fe Springs had a rated potential daily production of 300,000 bbls. per day, whereas the pipe line capacity out of the field was in excess of 350,000 bbls. daily. The potential peak of Santa Fe Springs as a result of deep zone exploitation was approximately 50,000 bbls. per day below the actual daily output chalked up during the 1923 peak.

Crude oil production at Long Beach did not show any abrupt fluctuation during the past year, declining from approximately 200,000 bbls. per day at the beginning of 1929 to about 160,000 bbls. at the time curtailment work was initiated during the latter part of last year. Crude oil curtailment and a normal decline has brought current production in that field to 99,000 bbls. per day. The development of fairly substantial production in the Elwood Field of Santa Barbara County resulted in the laying of one additional line, but so far has not caused any anxiety as to pipe line capacities. Production from the field, like that derived at Ventura Avenue, is moved to refining centers in tankers so that while additional lines have not been necessary tankers have been obliged to call more frequently.

The General Petroleum Co., which headed the production list at Santa Fe Springs for the greater part of the most recent period of flush production, has three 6-inch lines, one 4-inch and one 8-inch running out of Santa Fe Springs. The Union Oil Co., discoverer of the Santa Fe Springs Field, has a 4, a 6 and an 8-inch crude oil line from the field to Norwalk Station. The Shell Oil Co. moves its production out of the field by using a combination 6 and 8-inch crude oil line. The Standard has one 4-inch gasoline line to Northam Station and one 6-inch and one 8-inch for the transportation of crude oil. The Texas Company has one 6-inch crude oil line from Santa Fe Springs to Watson, while the Associated has an 8-inch crude oil line extending between the same two points. The Richfield Oil Co. also has an 8-inch crude oil line from Santa Fe Springs to Watson. Other miscellaneous pipe lines out of Santa Fe Springs include the Rio Grande's 4-inch line to Vinvale, Southern California Pipe Line Co.'s 6-inch line to Vernon, Wilshire Oil Co.'s 6-inch crude oil line to Vernon and the Sunset Pacific's 6-inch crude oil line to Los Angeles harbor.

Practically all of the major companies have adequate pipe lines out of the Long Beach Field. This includes an 8-inch line of the Standard Oil Co. with a daily capacity of 50,000 bbls. and a similar size line of the Richfield Oil Co. The Shell Oil Co. has one 8-inch and one 10-inch extending from Long Beach to its Wilmington refinery capable of moving 125,000 bbls. per day. The Texas Company has two 6-inch lines with a rated capacity of 50,000 bbls. daily and the Associated one 6-inch which can move approximately 25,000 bbls. per day. The General Petroleum has two 8-inch lines connecting up with its main trunk line capable of running about 50,000 bbls. daily. Other crude oil lines feeding Long Beach include a 6-inch of the Sunset Pacific Oil Co. and an 8-inch of the Seaboard Oil Co. with capacities of 25,000 and 45,000 bbls., respectively.

One of the troubles that has faced the conservationists in California was the very fact that the fields had plenty of pipe line outlet. It is doubtful if California pipe line companies would rush

pell-mell into new oil fields in 1930 with conditions as they are. They don't want the oil but with the lines in the field it was hard to refuse to take it. Then the law stepped in and made it necessary to conserve gas. To comply with the gas law, it was necessary to reduce production and now the pipe lines are getting only what oil they need.

Gulf Coast Fields Well Served

Shifting over to the Gulf Coast Field, we find three pools that helped in the general overproduction of oil, Refugio, Humble and Barbers Hill. Refugio is the largest of these and it is overpipe lined. Slightly less than two years old, Refugio has developed a daily output of better than 40,000 bbls. daily. Due to high gas pressures and water problems, this production represents a pinched-in flow, and, with lower pressures, it is possible the wells might be opened very materially. The extension of the field into the city limits of Refugio has been followed with a town lot drilling campaign which has forced a more than ordinary development of the field in what is known as the 3,700-foot area.

The producing possibilities of Refugio are extremely uncertain at this time. The opening of what is known as the 5,500-foot sand on the east side of the 3,700-foot area, which so far has been found to extend a distance of over a mile; later a wildcat 2 miles to the northeast drilled into a deeper sand at 5,884 feet, from which one of the best wells in the Refugio district was completed, and more recently a wildcat between the original field and the 2-mile extension wildcat opened another sand below 6,400 feet give promise.

The extent of these deep sands has not been determined as the territory east of the original 3,700-foot field has not been developed. The 5,500-foot sand has been found slightly spotted where drilling has been done, although seven good wells have been completed so far. Drilling is actively under way in the vicinity of the 5,884-foot well, but so far no test has reached that depth, and only a few scattered wildcats have been drilled to the 6,400-foot horizon, in which the one well has been completed. The latter, after a couple of weeks of production, went to water and then quit entirely.

As the 3,700-foot territory, which extends approximately 5 miles from north to south and about a couple miles across, already has been fairly well defined, the future of Refugio depends on the development of the three deep sands already found to the east of the 3,700-foot field. However, unless something unexpected happens in this development, it is indicated that the peak of Refugio already has been reached.

Refugio at present is served by the Gulf Coast Pipe Line Co. and the Humble Pipe Line Co. The latter has an 8-inch line extending from Refugio to Ingleside where Humble Oil & Refining Co. has a refinery. It has a capacity of from 20,000 to 25,000 bbls. daily. The Gulf Coast Pipe Line Co., owned by the Moody-Seagraves interests of Houston, has two lines, a combination 4 and 6-inch and a combination 8 and 10-inch loop, completed this year. This system has a rated capacity of between 40,000 and 50,000 bbls. daily. Houston Pipe Line Co. is preparing to convert its Refugio-White Point 12-inch gas line into a crude line, which will give the field a third pipe line outlet. From a pipe line standpoint, Refugio is well provided, although until this year there has not been sufficient pipe line outlet and considerable congestion has been occasioned at the field which depended on tank car movement for its principal outlet.

Case of Barbers Hill

Barbers Hill is the Gulf Coast's second largest field. The deep sand development on the east and south sides of the dome has run up a daily production of as high as 30,000 bbls. It has four pipe line outlets. Liberty Pipe Line Co.'s 4-inch line extends from the field to a point on Cedar Bayou, south of the field, whence the oil is barged to Texas City Sun Pipe Line Co. operates a similar line northward to Liberty where it connects with the company's Humble-Sabine Pass trunk. This line originally was a part of the Liberty Pipe Line Co.'s line. Humble Pipe Line Co. has a small line from the field to a connection with its Baytown line, 2 miles distant. Gulf Pipe Line Co.'s 8-inch line from Lynchburg to North Dayton passes through the field.

The Humble Field has a daily production of 15,000 bbls., which also has resulted from deep sand development of the past two years. An active drilling campaign now is under way to prove up a line of production entirely around the dome. The bulk of the deep production, which has been responsible for staging a comeback for this oil field, has been on the south side of the dome, but favorable undeveloped territory on the southwest and west sides promises greater potential for Humble.

Humble, being one of the oldest fields on the coast, is well provided with pipe lines. The Texas Pipe Line Co. and the Sun Pipe Line Co. have been the main outlets, but within the past two months Humble Pipe Line Co. has completed a 4-inch line to Baytown, a distance of 20 miles. Humble Oil & Refining Co., which has been one of the chief operators in the deep pool on the south side of the field, previously had been running its oil through the Texas Pipe Line Co.'s line to Liberty, where it was delivered to the Humble's line to Goose Creek.

Darst Creek Kept Down

The Darst Creek Field in Guadalupe County, Texas, has a potential production of 235,000 bbls. a day and could produce 80,000 bbls. a day after the head is off, but it has been kept down to about 29,000 bbls. a day by proration. The Humble Pipe Line Co. has a 6 and 8-inch line to Luling Station with a capacity of 24,000 bbls.; the Magnolia Pipe Line Co. has an 8-inch line to Luling Station with a capacity of 8,000 bbls.; the Texas Pipe Line Co., a 6-inch line, capacity 14,000 bbls., to Rosanky, a main line station; Greyburg Pipe Line Co., a 4-inch line, capacity 6,000 bbls., to the company's refinery in San Antonio; Louisiana Oil & Refining Co., a 6-inch line, capacity 19,000 bbls., to its loading rack at Sullivan, and the Witherspoon Oil Co., a small line with a capacity of 3,500 bbls. to its loading rack at Sullivan. This gives the field a pipe line capacity of 74,500 bbls. as against a potential of 235,000 bbls.

Van's Production Limited

The Van Pool in Van Zandt County, Texas, has been held back by a combination of unit operation and lack of pipe line facilities. The Pure Pipe Line Co. is building a line into Van, but it cannot take care of more than a part of the 100,000-bbl. potential production credited to that field and none of the other large Texas pipe line companies has made a move to enter the field.

WIDE INTEREST IN MOTOR FUEL CHANGES

(Continued from Page 29)

should be removed by wiping with tissue paper, as otherwise it might run down after insertion of the cork stopper and fall into the flask on removal of the stopper.

"One common practice which can lead to errors is that of superheating the oil outside the viscosimeter to too high a temperature. This, and the practice of "pokering" or heating of the oil in the cup by the immersion therein of hot bodies is not to be countenanced.

"Every precaution should be taken to see that the oil tube thermometer does not touch the orifice in stirring the oil.

"The cork must be snapped from its position with a quick jerk to minimize differences in the suction that will be applied to the oil.

"A stopwatch must be used for referee or standardization testing, as timing devices actuated by a pendulum beating seconds may be in error by 0.7 to 0.8 seconds at the end of the test.

With an oil of high viscosity, the oil stream should strike the receiving flask as close to the constricted neck as possible."

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 70)

COLLINGSWORTH COUNTY

Shope Bros.' No. 1 Aldus, 410 ft. N, 330 ft. E, Sec. 96, Blk. 16, H.&G.N.R.R. Sur. ..... Show oil and gas 1,678 ft.; bailed estimate 10 bbls. first day from G.W. 2,194-98 ft; S.D. 3,000 ft.

Shoupe Bros.' No. 1 Whitson, 330 ft. N and E, SW, Sec. 33, Blk. 12, H.&G.N.R.R. Sur. ..... Rig.

DONLEY COUNTY

Blue Bonnett Oil Co.'s No. 1 Ball, 1,075 ft. N line, 935 ft. E line, Sec. 22, Blk. E, D.&P.R.R. Sur. ..... T.D. 3,006 ft.; contract depth.

Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... S.D. 4,025 ft.

GRAY COUNTY

Amalgamated German-American Oil Co.'s No. 1 Webb, 330 ft. S and W, E½ NW, Sec. 12, Blk. A-9, H.& G.N. Sur. ..... S.D. 380 ft.

Baldridge & Lilley's No. 1 Melton, 330 ft. N and W, E½ SE, Sec. 95, Blk. B-2, H.&G.N.R.R. Sur. ..... T.D. 3,140 ft; 2,000 ft. oil in hole; estimated 15,000,000 ft. gas 2,918 ft; swbng. 2½ bbls. per hr.

Cockrell-McIlroy Oil Co.'s No. 1 Allam, 330 ft. N and E of E½ of NE¼, Sec. 127, Blk. 3, I.&G.N. Sur. ..... Drlg. plug. 589 ft.

Cockrell-McIlroy's No. 1 Horner, 330 ft. S and E, NE, Sec. 139, Blk. 3, I.&G.N. Sur. ..... Rigging up.

Continental Oil Co.'s No. 1 Wright, 330 ft. S and W, NW, Sec. 13, Blk. 3, I.&G.N. Sur. ..... Drlg. 715 ft.

Danciger O. & R. Co.'s No. 2 Bradford, C SW NE, Sec. 148, Blk. B-2, H.&G.N. Sur. ..... Location.

Danciger O. & R. Co.'s No. 1 Catlin et al, 175 ft. S, 300 ft. E of N 71 ac. of E 231 ac., Sec. 57, Blk. 3, I.&G.N. Sur. ..... S.D. 2,750 ft.

Danciger O. & R. Co.'s No. 5 Morse, 330 ft. N and E, SW SW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,505 ft.

Empire G. & F. Co.'s No. 1 Crow, 875 ft. N and W, NE, Sec. 137, Blk. 3, I.&G.N. Sur. ..... Rigging up.

Empire G. & F. Co.'s No. 2 Hexter, C SE, Sec. 235, Blk. B0Z, H.&G.N. Sur. ..... S.D. 3,250 ft; to P.B. for gas; 5,000,000 ft. gas 2,815 ft.

Empire G. & F. Co.'s No. 1 Sailor, 330 ft. S and W, NE, Sec. 138, Blk. 3, I.&G.N. Sur. ..... Location.

Empire G. & F. Co.'s No. 1 Whittemore, 2,310 ft. N and W, Sec. 14, Blk. 4, I.&G.N. Sur. ..... Location.

Gardner Bros. and Collins' No. 2 Saunders, 955 ft. S, 330 ft. E of W 68 ac., E½, J. G. Eustice Sur. ..... Location.

Humble O. & R. Co.'s No. 1 Young, C SW, Sec. 110, Blk. 3, I.&G.N. Sur. ..... S.D. 2,230 ft.

Jewell Oil Co.'s No. 1 Harrah, 330 ft. N and W, of W 40 ac., S 120 ac., E 240 ac., Sec. 163, Blk. 3, I.& G.N. Sur. ..... U.R. 10-in. csg; T.D. 805 ft.

LeFlore Pet. Corp.'s No. 1 Wilson, 330 ft. N and E, Sec. 1, B.S.&F. Sur. ..... Drlg. 2,450 ft.

Lenix et al's No. 1 Bradford, 330 ft. N and E, W½ SE, Sec. 118, Blk. B-2, H.&G.N.R.R. Sur. ..... 8,000,000 ft. gas 2,400 ft; 7,000,000 ft. gas 2,740 ft; T.D. 3,252 ft; to P.B. for gas.

Lyon et al's No. 2 Morse, 330 ft. S and W, NW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... Drlg. 2,350 ft.

Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W cor. SE, Sec. 200, Blk. B-3, H.&T.N. Sur. ..... S.D. 2,050 ft.

Magnolia Pet. Co.'s No. 1 Cubine, 330 ft. N and W, NE, Sec. 36, Blk. 25, H.&G.N.R.R. Sur. ..... 9,000,000 ft. gas 2,325-35 ft.; fishing 2,775 ft.

Magnolia Pet. Co.'s No. 1 Sailor, 990 ft. S, 330 ft. W, E½ NE, Sec. 138, Blk. 3, I.&G.N. Sur. ..... Location.

McAuley et al's No. 4 Morse, 330 ft. N and W, SE cor. NE, Sec. 2, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,175 ft.

Midwest Explin. Co. et al's No. 1 Waggoner, 1,320 ft. W, 330 ft. N, Sec. 173, Blk. 3, I.&G.N. Sur. ..... Skidded rig 10 ft. west.

Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... S.D. 725 ft.

Prairie Oil & Gas Co.'s No. 1 Carey, 372 ft. from W and 330 ft. from N of Sec. 114, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,235 ft.

Saulsbury et al's No. 1 Sheridan, 330 ft. S and E, W½ NE, Sec. 184, Blk. B-2, H.&G.N. Sur. ..... Drlg. 2,275 ft.

W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ..... S.D. 2,270 ft.

Smith's No. 1 Morse, 200 ft. S, 330 ft. W, Sec. 6, Blk. 26, H.&G.N. Sur. ..... Building rig.

Smith & McDaniels' No. 1 Chapman, 990 ft. N and E, SW, Sec. 52, Blk. 25, H.&G.N. Sur. ..... Location.

Reynolds et al's No. 1 Webb, 330 ft. N, 330 ft. E, NW, Sec. 60, Blk. 25, H.&G.N.R.R. Sur. ..... S.D. 2,530 ft.

Tedesco Oil Co. et al's No. 1 Morse, 330 ft. N and W, NE SW, Sec. 1, Blk. 26, H.&G.N. Sur. ..... Rig on ground.

Vulcan O. & G. Co.'s No. 1 Carpenter, 330 ft. N and W, W 80 ac., NW, Sec. 25, Blk. 25, H.&G.N.R.R. Sur. ..... S.D. 2,810 ft; T.P. 2,740 ft; 1,000 ft. oil in hole.

Wilson et al's No. 1 Heaston, 330 ft. S and W. Sec. 160, Blk. B-2, H.&G.N.R.R. Sur. ..... 2,500,000 ft. gas 2,825 ft; drlg. 2-990 ft.

HUTCHINSON COUNTY

Danciger O. & R. Co.'s No. 1 Cheatham, 330 ft. N and E. SW SE, Sec. 38, Blk. Y, A.&B. Sur. ..... U.R. 8-in. csg; T.D. 2,812 ft.

Holmes et al's No. 3 Quinn, 330 ft. S and W, Sec. 7, Blk. 9, I.&G.N. Sur. ..... Location.

Huber & Co.'s No. 1 Christian, 330 ft. E and 990 ft. N of SW¼ Sec. 33, Blk. Y, A.&B. Sur. ..... Drlg. 750 ft.

Phillips Pet. Co.'s No. 1 Johnson-Trammel, 930 ft. N, 330 ft. W, SE cor. W½ NW, Sec. 38, Blk. Y ..... T.D. 3,250 ft.

Phillips Pet. Co.'s No. 1 Johnson-Mayer, 990 ft. N and 990 ft. W line, NE, Sec. 37, Blk. Y, A.&B. Sur. ..... S.D. 3,039 ft.

Phillips Pet. Co.'s No. 1 Johnson-Rudy, 330 ft. W, 330 ft. S, SW SW, Sec. 30, Blk. Y, A.&B. Sur. ..... T.D. 3,346 ft; P.B. 2,975 ft; S.D.

Phillips Pet. Co.'s No. 1 Herring, 330 ft. N and E, W½, Sec. 7, Blk. X02, H.&O.B. Sur. ..... Location.

Phillips Pet. Co.'s No. 1 Pease, 330 ft. S and E, Sec. 9½, Z. C. Collier Sur. ..... Location.

Phillips Pet. Co.'s No. 1 Vake (Hazel), 330 ft. N and W, Sec. 4, Blk. XO2, H.O.&B. Sur. ..... Drlg. 2,515 ft.

Sinclair O. & G. Co.'s No. 1 Johnson Bros., 330 ft. N and E, NW, Sec. 32, Blk. Y, A.&B. Sur. ..... Drlg. 860 ft.

Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... Drlg. 1,996 ft.

Spurlock et al's No. 1-A Christian, 440 ft. S, 330 ft. W, NE cor. SE SE, Sec. 33, Blk. Y ..... Drlg. 2,820 ft.

Texas Interstate P. L. Co.'s No. 1 Bost, 660 ft. N and E. Sec. 9. Blk. Y-2, T.T.R.R. Sur ..... Drlg. 300 ft.

LAMB COUNTY

Graham O. & G. Co. et al's No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... S.D. 4,408 ft.

LIPSCOMB COUNTY

Brown et al's No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... S.G. 3,760 ft; S.D. 4,142 ft.

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... S.D. 4,954 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft.; S.D. 4,167 ft.

MOORE COUNTY

Delmar Oil Co.'s No. 1 Jones, 990 ft. E, 330 ft. N, NW, Sec. 171, Blk. 3-T, T.&N.O. Sur. ..... S.D. 612 ft.

Fritch O. & G. Co.'s No. 1 Lee Bivins, C N 40 ac., N 160 ac., Sec. 4, George Mahan Sur. ..... S.D. 3,212 ft.

Gulf Prod. Co.'s No. 1 Kilgore, C SW, Sec. 22, Blk. P.Mc., E.L.R.R. Sur. ..... Gas estimated 15,000,000 ft. 3,650-60 ft; T.D. 3,645 ft; to complete as gasser.

Shamrock O. & G. Co.'s No. 1 Shory, 330 ft. N and W, NE, Sec. 187, Blk. 3-T, T.&N.O. Sur. ..... Drlg. 3,050 ft; 15,000,000 ft. gas 2,830-3,050 ft.

Texas Interstate P. L. Co.'s No. 1 Zotness, C NW, Sec. 55, Blk. 6-T, T.&N.O. Sur. ..... Drlg. 560 ft.

Texas P. L. Co.'s No. 1 Sneed, Jr., C NE, Sec. 46, Blk. 6-T, T.&N.O. Sur. ..... Spudding.

MOTLEY COUNTY

Explin. Co.'s No. 6 Matador, 330 ft. N line, 330 ft. E line, Sec. 132, Blk. M ..... Drlg. 4,100 ft.

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G. B.&B. Sur. ..... S.D. 580 ft.

POTTER COUNTY

Marshall Spivey's No. 1 Bivins, C SW, Sec. 39, Blk. M-20, G.&M. Sur. ..... Location.

Texas Interstate P. L. Co.'s No. 1 Masterson, C, Sec. 37, Blk. B-10, E.L.R.R. Sur. ..... Drlg. 1,560 ft.

RANDALL COUNTY

W. A. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14.... S.D. 1,250 ft.

ROBERTS COUNTY

Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. A-5 ..... Shot 10 qts. 5,270-93 ft.; S.O. 5,-288 ft.; S.D. 5,992 ft.

WHEELER COUNTY

Anderson's No. 1 Reneau, C SW NE, Sec. 98, Blk. 23, H.&G.N. Sur. ..... S.D. 1,723 ft.

Dunaway Bros.' No. 1 Worley, 330 ft. S and W, NE cor. NW, Sec. 39, Blk. 24, H.&G.N. Sur. ..... 15,000,000 ft. gas 2,025-2,230 ft; T. D. 2,295 ft; swbng. 30 bbls. oil daily.

Johnson et al's No. 2 Hicks, 890 ft. W, 990 ft. S, Sec. 49, Blk. 17, H.&G.N. Sur. ..... S.D. 825 ft.

Lone Star Gas Co.'s No. 3 Edwards-Trostle, C NE NW, Sec. 130, Blk. 23, H.&G.N. Sur. ..... Drlg. 1,100 ft.

Lone Star Gas Co.'s No. 2 Hicks (Martin), C NW NE, Sec. 52, Blk. 17, H.&G.N.R.R. Sur. ..... S.D. 1,610 ft.

Long et al's No. 1 Willington, 330 ft. S and W, NW, Sec. 8, Blk. 27, H.&G.N. Sur. ..... Rigging up.

Magnolia Pet. Co.'s No. 2 Worley, 330 ft. N and W, NE, Sec. 39, Blk. 24, H.&G.N. Sur. ..... Location.

McGee et al's No. 1 Jolly, C NE, Sec. 15, Blk. A-8, H.&G.N. Sur. ..... S.D. 500 ft.

Murchison & Fain's No. 1 Magnolia Pet. Co., C SE NE, Sec. 54, Blk. 23, H.&G.N. Sur. ..... Location.

Murphy's No. 1 Pike, cen. NE¼ of SW¼ Sec. 50, Blk. 17, H.&G.N. Sur. ..... Fishing; T.D. 1,763 ft.

Wischkamper et al's No. 1 Kiser, 330 ft. N and E of SW¼ Sec. 33, Blk. 17, H.&G.N. Sur. ..... Drlg. 1,100 ft.

Woodley et al's No. 1 Sloss & Admire, 660 ft. N, 330 ft. E, Sec. 47, Blk. 13, H.&G.N. Sur. ..... Location.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 69)

CRANE COUNTY

Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land ..... Drlg. 3,690 ft.; show oil 2,995 ft.

C. C. Duffey's No. 1 Cowden Bros., 580 ft. NE and 1,333 ft. SE of W cor., Sec. 31, Blk. 2, H.&T.C. Sur. .. Drlg. 2,675 ft.

Sun Oil Co.'s No. 1 First National Bank, C Sec. 6, J. H. Gibson Sur. ..... Drlg. 375 ft.

CROCKETT COUNTY

Dixie Oil Co. and Amerada's No. 2 Powell, 258 ft. N and 2,349 ft. W of NE cor. of Sec. 42, T.C. Ry., but located in Sec. 52, Blk. BB ..... Location.

Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur. ..... Spudded and shut down.

Magnolia Pet. Co.'s No. 1 Hoover, 2,310 ft. from N and 330 ft. from E of Sec. 12, Blk. 1, G.C.&S.F.R.R. Sur... Shut down 5,050 ft.

G. Schaul's No. 1 Bouscour Est., 330 ft. N and 2,310 ft. from W of Sec. 27, Blk. HH, G.C.&S.F. Sur. ..... Rigging up.

CULBERSON COUNTY

Grisham & Hunter Corp.'s No. 1 Garren, 2,310 ft. from S and 330 ft. from E of Sec. 18, Blk. 89, P.S.L. Sur. ... Shut down 2,514 ft.

Kornrumpf et al's No. 1 Garren, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land ..... Drlg. 710 ft.

ECTOR COUNTY

Amerada and Skelly's No. 1-B University, 990 ft. from S and 440 ft. from E line, Sec. 3, Blk. 35, University Land ..... Drlg. 3,402 ft.

C. P. Davis et al's No. 1 Hendricks, C SW, Sec. 46, Blk. 42, Twp. 2s, T.&P.R.R. Sur. ..... Shut down 4,012 ft.

Independent Oil & Gas Co.'s No. 1 Eidson, 1,250 ft. S and 2,144 ft. E of NW cor., Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur. ..... Shut down 3,800 ft.; 1,100 ft. oil in hole.

H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G.M.M.Br.&A. Sur. ..... Top salt 865 ft.; drlg. 1,445 ft.

T. P. Coal & Oil Co.'s No. 1 McKenzie, 1,650 ft. from S and 330 ft. from E of Sec. 282, Blk. 45, Twp. 2s, T.&P. Sur. ..... Shut down 3,870 ft.; swabbing dry.

Transcontinental Oil Co.'s No. 1 University, 1,650 ft. from N and 440 ft. from E line of Sec. 39, Blk. 35, University Land ..... Drlg. 3,654 ft.; top pay 3,589 ft.; 3,000 ft. oil in hole.

R. R. Penn et al's No. 1 Goodman et al, 2,640 ft. N and 330 ft. W of SE cor., Sec. 27, Blk. 44, T.&P.R.R. Sur... Drlg. 1,435 ft.

Simms Oil Co.'s No. 3 University, 2,310 ft. from N and 330 ft. from W of Sec. 1, Blk. 35 ..... Drlg. 255 ft.

Skelly Oil Co. and Republic Prod. Co.'s No. 1 McKenzie, 990 ft. from S line and 330 ft. from E line of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. ..... Top pay 3,665 ft.; increase 3,685 ft.; drlg. 3,745 ft.; flowing and swabbing 75 bbls. daily.

Sunray Oil Co. et al's No. 1 Jones, 2,330 ft. from N and 440 ft. from E of Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur... Drlg. 3,289 ft.

The Texas Co. et al's No. 8 Connell, 330 ft. from S and 440 ft. from E of Sec. 2, Blk. B-16 ..... Drlg. 150 ft.

EL PASO COUNTY

Lane-The Texas Company's No. 1 Malone, 2,110 ft. from SW and NW of Sec. 46, J. M. Day Sur. ..... Shut down 3,089 ft.

FISHER COUNTY

Cranfill & Reynolds' No. 2 Barrett, 330 ft. from N and W of NE. Sec. 199, B.B.B.&C. Sur. ..... Drlg. 1,150 ft.

Cranfill & Reynolds' No. 1 Cooper et al, 330 ft. from S and 990 ft. from W of Sec. 198, B.B.B.&C. Sur. .... Spudded and shut down.

Cranfill & Reynolds' No. 2 Flannigan, 330 ft. from S and E of W half of Sec. 200, B.B.B.&C.R.R. Sur. ... Spudding.

Mid-West's No. 1 Decker, 330 ft. from S and W of W 80 ac. of N 160, Sec. 8, Richardson Sur. ..... Drlg. 1,540 ft.

Roeser & Pendleton's No. 1 Steele, 660 ft. from N and 440 ft. from W of N half of SW, Sec. 210, B.B.B.&C. Sur. ..... Show gas 1,845-65 ft.; drlg. 1,985 ft.

The Texas Company's No. 1-A Teagarden, 150 ft. from S and 420 ft. from E of Sec. 8, Richardson Sur. ... Drlg. 2,175 ft.

GAINES COUNTY

Humble Oil & Ref. Co.'s No. 1 Carswell, 660 ft. S and E of NW cor. of Sec. 23, Blk. A-27, Public School Land.. Top salt 1,775 ft.; drlg. 2,620 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 6, H.&G.N. Sur. ..... Spudded and shut down.

Richard's No. 1 Stoker, 330 ft. from N and W, Sec. 2, Blk. 2, G.H.&H. Sur. ..... Top lime 2,366 ft.; total depth 2,500 ft.; cleaning out.

GLASSCOCK COUNTY

Associated Oil Co.'s No. 1 Coffee, 2,310 ft. E and 330 ft. from S of Sec. 27, Blk. 33, Twp. 2s, T.&P. Sur. ..... Total depth 1,140 ft.; underreaming 10-in. casing.

California Co.'s No. 1 Jones, 330 ft. S from N and E lines, Sec. 25, Blk. 33, Twp. 2s, T.&P. Sur. ..... Testing show oil 2,516-56 ft.; bailed 5 gals. oil and 5 gals. salt water; drlg. 3,230 ft.

California Co.'s No. 2 Baker, 2,970 ft. S and 1,650 ft. E, parallel to section lines of NW cor., Sec. 23, Blk. 32, Twp. 2s, T.&P. Sur. ..... Drlg. 2,139 ft.

Kirby Pet. Co. et al's No. 2 Phillips, 990 ft. S and 2,310 ft. E of NW cor., Sec. 23, Blk. 33, Twp. 2s, T.&P. R.R. Sur. ..... Shut down 2,264 ft.; 1,800 ft. oil in hole; fishing for tools.

Timberlake & Snyder's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor., Sec. 7, Blk. 34, Twp. 3s, T.P. Sur.... Total depth 2,956 ft.; may drill deeper.

World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor., Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur... Drlg. 300 ft.

World Oil Co.'s No. 1 Edwards, 330 ft. from S line and 2,310 ft. from W line of Sec. 13, Blk. 34, Twp. 2s, T.&P. Sur. ..... Top salt 1,490 ft.; shut down 3,-420 ft.

HOWARD COUNTY

Cosden Oil Co.'s No. 6 Roberts-A, 200 ft. N and E of SW cor., Sec. 129, Blk. 29, W.&N.W.R.R. Sur. ..... Sulphur water 1,423-46 ft.; shut down 1,456 ft.

McGinley-Sigler's No. 1 Eyman-C, 330 ft. N and 990 ft. W SE cor., Sec. 93, Blk. 29, W.&N.W.R.R. Sur. ..... Location.

Merriwether's No. 1 Smith, 150 ft. from S, 2,490 ft. from W, Sec. 45, Blk. 33 ..... Total depth 2,685 ft.; cleaning out.

Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Shut down 261 ft.

Sinclair O. & G. Co.'s No. 1 Montgomery et al, 2,310 ft. from N and W of Sec. 11, Blk. 30, Twp. 1s, T.&P. Sur. ..... Total depth 2,570 ft.; top pay 2,452-64 ft.; est. 40 bbls. on pump; shot 230 qts. from 2,452-2,570 ft.; pumps 50 bbls. in 12 hrs.; pumping off.

HUDSPETH COUNTY

Rio Bravo Oil Co.'s No. 1 Southern Pacific right of way, 1,800 ft. N and 1,000 ft. E of Sec. 16, Blk. 72, Twp. 7, T.&P. Sur. ..... Location.

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor., Sec. 19, Blk. E ..... Drlg. plug 4,697 ft.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW, Sec. 12, Blk. 18 ..... Fishing 3,155 ft.

IRION COUNTY

Crawford Oil Co.'s No. 1 Williams, 450 ft. from N, 150 ft. from W, Subd. 8 ..... Shut down 1,105 ft.

Cromwell et al's No. 1 Tankersley, 150 ft. from N and 210 ft. from W of E half of Sec. 1,230, G.C.&S.F. Sur... Drlg. 395 ft.

Cromwell et al's No. 2 Tankersley, 200 ft. from N and 150 ft. from W of Sec. 1,219, T.C.R.R. Sur. ..... Location.

Kingwood Oil Co. et al's No. 1 J. D. Suggs, SE NW SE, Sec. 19, Blk. 7, H.&T.C. Sur. ..... Total depth 7,818 ft.; plugged back to 6,800 ft.; shot 30 qts. from 6,750-80 ft.; swabbed 3 bbls. oil daily.

Cromwell et al's No. 3 Nutt, 904 ft. from N and 116 ft. from W of Blk. 6, Gonzales Co. School Land ..... Drlg. 1,065 ft.

P. H. Williams' No. 1 Ash, C of Sec. 20, Washington County ..... Show oil 7,931 ft.; shut down 8,-890 ft.; may drill deeper.

Webb et al's No. 1 Nutt, 150 ft. from S and 116 ft. from W of Blk. 5, Gonzales Co. School land ..... Machine.

Straughan and Texannati Oil Co.'s No. 1 Nutt, 150 ft. N and E of NW NW, Blk. 6, Gonzales County School Land ..... Total depth 1,449 ft.; top pay 1,439 ft.; swabbing 5 bbls. oil per hour.

JONES COUNTY

Gibson & Johnson's No. 1 Hudspeth, 1,125 ft. from N and 483 ft. from E of Sec. 22, Edward Miles Sur. .... Underreaming 6⅝-in. casing; total depth 2,300 ft.

Shabeen et al's No. 1 King, 6,750 ft. from N and 150 ft. from E of M. Bueno Sur. No. 197. ..... Drlg. 895 ft.

KENT COUNTY

White & Smith's No. 1 Pursley estate, 1,320 ft. from E and 2,640 ft. from S of Sec. 8, Blk. H. H.&T.B. Sur... Shut down 273 ft.

LAMB COUNTY

Graham Oil & Gas Co.'s No. 1 Ellwood, CW1/4 Sec. 9, Blk. T, T. A. Thompson Sur. ..... Shut down 4,428 ft.

LOVING COUNTY

Dixie and Phillips Pet.'s No. 1 Johnson, 1,320 ft. from N and E of Sec. 38, Blk. 54, Twp. 2s, T.&P. Sur. .... Fishing 3,375 ft.

Eppenauer et al's No. 1 Allen, 2,310 ft. from NE and NW lines Sec. 90, Blk. 1, W.&N.W. Sur. ..... Material.

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,383 ft.

Hadlock et al's No. 2 Russell, 1,650 ft. SW of NE line, 2,310 ft. NW of SE line, Sec. 80, Blk. 1, W.&N.W. R.R. Sur. ..... Drlg. 2,350 ft.

Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. ..... Spudded 140 ft.; shut down

Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 83, Blk. 33, H.&T.C.R.R. Sur... Rigged up.

Lockhart's No. 2 Wheat & Ramsey, 440 ft. from NE and 880 ft. from NW Sec. 83, Blk. 1, W.&N.W. ..... Location.

Miller et al's No. 1 Chapman, 225 ft. from NW and 285 ft. from SW line, Sec. 71, Blk. 1, W.&N.W. Sur. ..... Shut down 300 ft.

Rush et al's No. 1 Wheat, 1,650 ft. from NW and 330 ft. from SW of Sec. 85, Blk. 1, W.&N.W. Sur. ..... Cellar.

California Co.'s No. 2 Reagan & McElvain, 440 ft. from NW and SW Sec. 84, Blk. 1, W.&N.W. Sur. .... Rigging up.

California Co.'s No. 4 Reagan & McElvain, 330 ft. from NE and 1,650 ft. from NW, Sec. 84, Blk. 1, W.&N.W... Location.

Lee O. White et al's No. 1 Russell et al, 320 ft. from NW and 2,200 ft. from SW, Sec. 80, Blk. 1, W.&N.W... Location.

LYNN COUNTY

Lubewell Oil Co.'s No. 1 May, 2,310 ft. S, 2,310 ft. W, Sec. 10, Blk. 7, E.L.R.R. Sur. ..... Shut down 190 ft. for casing.

George McCamey's No. 1 Edwards, 165 ft. N and E, Sec. 5, Blk. 2, L.S.&W. Sur. ..... Shut down 5,040 ft.

MENARD COUNTY

Barnett et al's No. 3 Callan City Co., 300 ft. from S and W, Sec. 1, B.S.&F. Sur. ..... Drlg. 482 ft.

Panhandle Ref. Co.'s No. 2 Eckhart, 1,320 ft. from W and 1,320 ft. from S of Sec. 10, Blk. 2, T.W.N.G. Sur. ..... Drlg. 1,715 ft.

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. ..... Drlg. 2,165 ft.

MIDLAND COUNTY

Pure Oil Co.'s No. 1 Hutt, 2,310 ft. from N and 330 ft. from E of Sec. 14, Blk. 38, Twp. 4s, T.&P. Sur. ..... Shut down 4,120 ft.

MITCHELL COUNTY

Gant & Teas' No. 1 Handley, 330 ft. S and W parallel to section lines of NE cor. of SE, Sec. 12, Blk. 28, Twp. 1n, T.&P. Sur. ..... Drlg. 2,600 ft.

Morrison et al's No. 2 Morrison, 2,390 ft. from N and 660 ft. from E of Sec. 31, Blk. 28, Twp. In, T.&P. R.R. Sur. ... Total depth 3,112 ft.; top pay 3,038 ft.; 1,000 ft. oil in hole. swabbing 40 bbls. in 24 hrs.

Morrison et al's No. 1 Poe et al, 660 ft. S and 1,980 ft. W parallel to section lines of NE cor., Sec. 8, Blk. 27, T.&P. Sur. ... Spudded 10 ft. and shut down.

PECOS COUNTY

Buell & Hagan et al's No. 1-A Pecos Valley Oil Co., 150 ft. from NW and 1,470 ft. from NE of Sec. 22, Blk. 10, H.&G.N. Sur. ... Drlg. 1,030 ft.

Crosby Prod. & Ref. Co.'s No. 1 Cordova, 330 ft. from N and E of S 320 ac., Sec. 11, H.&G.N. Sur. ... Shut down 2,080 ft.

Fisher & Lowrie's No. 1 Webb, C Sec. 3, Blk. 203, Tillman & Walters Sur. ... Drlg. 3,160 ft.

Galt-Brown's No. 1 Neville, 2,265 ft. from E and 764 ft. from S, Sec. 74, Blk. 194, G.C.&S.F. ... Location.

Hayes et al's No. 1 Lea, C NW of NE, Sec. 9, Blk. 106, T.&St. L. Sur. ... Location.

G. A. Henshaw, Jr., Inc.'s No. 1 University, 1,650 ft. from S and 990 ft. from E, Sec. 32, Blk. 16 ... Spudding 90 ft.

Humble Oil & Ref. Co.'s No. 1 Kokernot, 1,320 ft. from N line and 1,467 ft. from W line of Sec. 227, Blk. 10, G.H.&S.A. Sur. ... Drlg. 945 ft.

Humble Oil & Ref. Co.'s No. 1 Thompson, 1,980 ft. N and E of Sec. 96, G.C.&S.F. Sur. ... Rigging up.

Hussman Oil Co.'s No. 1 Esters, 960 ft. from N and 300 ft. E, Sec. 83, Blk. OW, T.M.R.R. Sur. ... Shut down 1,680 ft.

Independent O. & G. Co.'s No. 4 McDonald, 155 ft. from N and 2,485 ft. from E, Sec. 46, Blk. 12, H.&G.N. ... Location.

Mcarty Oil Co.'s No. 2 Gray, 2,370 ft. from N and 450 ft. from W, Sec. 591, G.C.&S.F. Sur. ... Drlg. 560 ft.

Messenger et al's No. 2 Byrne, 2,490 ft. from NE and SE of Sec. 54, Blk. 10, H.&G.N. Sur. ... Shut down 1,190 ft.

J. R. Miller et al's No. 1 Bennett, 359 ft. W from CWL, Sec. 1, Blk. 119, G.C.&S.F. Sur. ... Drlg. 800 ft.

J. D. O'Mara's No. 1 Bennett, Sec. 592, 1,460 ft. from S, 150 ft. from E, G.&C.S.F. Sur. ... Drlg. 1,210 ft.; top pay 1,089 ft.; well making estimated 5 bbls. oil per day.

J. D. O'Mara's No. 1 Streety, C of Sec. 1, W. P. Howard Sur. ... Show oil 1,785 ft.; shut down 2,200 ft.

Oregon Oil Corp.'s No. 2 Yates, 150 ft. from S and W of Sec. 58, Blk. 1, I.&G.N. ... Drlg. 1,475 ft.

Peren Oil Co.'s No. 2 Eaton, C of E of W, Sec. 27, Blk. 3, H.&T.C. Sur. ... Shut down 1,323 ft.

Perren's No. 1 Jackson, 200 ft. from NW and SW of Sec. 28, Blk. 3, H.&T.C. ... Shut down 690 ft.

Plymouth Oil Co.'s No. 4 Perry, 300 ft. from N and 420 ft. from E, Sec. 14, Blk. 194, G.C.&S.F. Sur. ... Location.

R. W. Porpus et al's No. 1 State Land, 330 ft. S and W lines of NE, Sec. 28, Blk. OW, T.C.R.R. Sur. ... Spudded and shut down.

Phillips Pet. Co.'s No. 3 Monroe, 3,860 ft. from N and 1,255 ft. from E, Sec. 39, Blk. 194, G.C.&S.F. ... Rigging up.

Pure Oil Co.'s No. 1 Harrison, 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ... Spudding.

Riser & White's No. 1 Riser, 2,297 ft. from S and 997 ft. from E of Sec. 24, Blk. 12, H.&G.N. Sur. ... Location.

Sides & Cloyd's No. 2 Blackstone & Slaughter, C NW of Sec. 34, Blk. A-2, T.&C.R.R. Sur. ... Shut down 2,070 ft.

Southern Crude Oil Pur. Co.'s No. 2 Eaton, 2,310 ft. from SW and SE, Sec. 35, Blk. 3, H.&T.C. Sur. ... Shut down 1,430 ft.

California Co.'s No. 1 Fromme, 330 ft. from NE and NW Sec. 106, Blk. 10, H.&G.N. Sur. ... Drlg. 585 ft.

The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor., Sec. 9, Blk. 131, T.&S.T.L. Sur. ... Show oil 3,460 ft.; total depth 3,484 ft.

Transcontinental Oil Co.'s No. 1 University, 1,980 ft. N and E of SW cor., Sec. 18, Blk. 18, University Land. ... Shut down 4,920 ft.

Transcontinental Oil Co.'s No. 2 Perry, 330 ft. from N and E of Sec. 6, Blk. Z, T.C.Ry. Sur. ... Total depth 1,938 ft.; top pay 1,922 ft.; shot 15 qts. 1,925-38 ft.; shot 60 qts. from 1,925-38 ft.; flowed 38 bbls. first 12 hrs.

W. F. Walsh et al's No. 1 Scharbaur Cattle Co., 330 ft. S and 990 ft. E from C, Sec. 16, Blk. 136, T.&St. R.R. Sur. ... Drlg. 2,385 ft.

Warner's No. 1 Webb, 2,550 ft. from NW and 6,100 ft. from NE of Sec. 311, Abst. 756, C. McGinley Sur. ... Location.

PRESIDIO COUNTY

L. C. Brite's No. 4 Brite, 271 ft. from N and 1,188 ft. from E lines of Sec. 245, Blk. 4 ... Drlg. 2,365 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor., Sec. 1, Blk. 2, University Land. ... 9,442,000 ft. gas; averaged 705 bbls. per day for last 7 days; total depth 8,668 ft.

Beesley et al's No. 1 Sawyer Cattle Co., 1,320 ft. from N and 3,960 ft. from E, Sec. 8, J. G. Robinson Sur., elevation 2,586 ft. ... Drlg. 1,800 ft.

Big Lake Oil Co.'s No. 4-C University, 1,120 ft. from N and 1,096 ft. from E of Sec. 1, Blk. 2 ... Top pay 8,220 ft.; flowing average 70 bbls. per day; total depth 8,220 ft.

Big Lake Oil Co.'s No. 5-C University, 625 ft. from S and 250 ft. from W of Sec. 25, Blk. 9 ... Drlg. 570 ft.

Texon Oil & Land Co.'s No. 3-B University, 2,240 ft. from S, 920 ft. from W, Sec. 36, Blk. 9 ... Top pay 8,517 ft.; flowing average 125 bbls. per day, 3,600,000 ft. gas; drlg. 8,627 ft.; well killed.

Westyde Investment Co.'s No. 1 Scott, 1,280 ft. N and 1,320 ft. from W, Sec. 177, Blk. 1, T.&P. Sur. ... Drlg. 2,325 ft.

REEVES COUNTY

H. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. Sur. ... Shut down 380 ft.

Black & Fink's No. 1 Brooks, 1,980 ft. N and 660 ft. W, Sec. 16, Blk. 59 ... Shut down 1,860 ft.; show oil 1,820 ft.; cleaning out after two shots; filled up 200 ft. with oil.

Salsbury & Gregory's No. 1 Young Bell, 1,170 ft. from N and 330 ft. from E of Sec. 7, Blk. 5, H.&G.N. ... Location.

Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ... Show oil 3,410 ft.; shut down 3,575 ft.

California Co.'s No. 1 Kloh & Rumsey, 1,650 ft. from S and E of Sec. 13, Blk. 54, Twp. 4, T.&P. Sur. ... Drlg. 1,775 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 419 ... Drlg. 350 ft.

Gibson & Johnson's No. 2 Serratt, 2,310 ft. from S and 1,650 ft. from E of Sec. 150, E.T.R.R. Sur. ... Derrick.

George W. Boyce's No. 1 Lang, 2,310 ft. N, 6,900 ft. E, Sec. 262 ... Show oil 2,028 ft.; shut down 2,643 ft.

SCHLEICHER COUNTY

Delmar Oil Co.'s No. 1 O'Harrow, C of NW, Sec. 56, Blk. 1, G.H.&S.A.R.R. Sur. ... Total depth 4,065 ft.

Interstate's No. 1 Whitten, 1,320 ft. from N and W, Sec. 35, Blk. LL, T.C.R.R. Sur. ... Drlg. 6,800 ft.; bails from 5 to 10 gals. of 50 gravity oil every 3 to 5 hrs.

Teas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. of Sec. 37, Blk. K, G.H.&S.A.R.R. Sur. ... Running 10-in. casing 2,225 ft.

Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C.R.R. Sur. ... Spudding.

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A.R.R. Sur. ... Fishing 4,912 ft.

SCURRY COUNTY

Byrd & Harmon's No. 1 Murphy, Jr., 320 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. Sur. ... 2,000 ft. oil in hole; total depth 3,320 ft.; fishing bit; top pay 1,750 ft.; swabbed 106 bbls. in 5 hrs.; filled up 600 ft. in 26 hrs. after swabbing.

Camp Spring Oil & Ref. Co.'s No. 3 Guinn, 1,300 ft. from S, 300 ft. from E, Sec. 12, Blk. 3, H.&T.C.R.R. Sur. ... Shut down 4,367 ft.

Camp Springs Oil Co.'s No. 1 Strayhorn, 330 ft. from S and 1,980 ft. from W of Sec. 154, Blk. 3, H.&G.N. ... Location.

I. B. Mimms et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C.R.R. Sur. ... Spudded and shut down.

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ... Fishing 4,532 ft.

Transcontinental Oil Co.'s No. 1 Peckham, 330 ft. from S and W of R. N. Miller Sur. ... Cleaning out; total depth 2,557 ft.

STERLING COUNTY

Mann et al's No. 1 Reed, 330 ft. from N and 2,310 ft. from W, Sec. 16, Blk. 14, S.P.R.R. ... Location.

SUTTON COUNTY

Independent Oil & Gas Co.'s No. 1 Wilson, Sec. 30, Blk. A, 1,650 ft. from N, 2,310 ft. from W ... Location.

TAYLOR COUNTY

Clark et al's No. 1 Kendall, 250 ft. from N and W of farm in Willis Avery Sur. ... Spudded and shut down.

Condor Pet. Co.'s No. 1 Stoker, C of NW, Sec. 220, Blk. 64, H.T.C.C.R.R. Sur. ... Drlg. 3,290 ft.

Eastland Oil Co. et al's No. 1 Teaff, 150 ft. from N and W of N 109-acre farm of 219-acre tract, W. Avery Sur. ... Drlg. 2,365 ft.

Gibson & Johnson's No. 1 Bingham, 330 ft. N and E of SW cor. their 270.8-acre tract, Sec. 31, Guadalupe County School Land ... Total depth 2,412 ft.; drlg. by pipe.

John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor., Sec. 46, Lunatic Asylum Land ... Show oil 4,917 ft.; drlg. 5,965 ft.

Hucony Oil Co. et al's No. 1 Richie, C SE Sec. 10, Blk. A, S.P.R.R. Sur. ... Shut down 1,080 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ... Shut down 2,020 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C, Sec. 6, Georgetown Ry. Sur. ... Shut down 3,150 ft.

Miller Bros.' No. 1 Allison & Burke, C NW cor., Sec. 10, Blk. 176, T.&P. Sur. ... Shut down 120 ft.

Mrs. J. B. McPhees' No. 1 Sam Belt, C, Sec. 17, Blk. D-7, E.L.R.R. Sur. ... Shut down 880 ft.; moved off machine.

Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F.R.R. Sur. ... Drlg. 4,695 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ... Shut down 640 ft.

TERRY COUNTY

Atlantic et al's No. 1 Carlisle, 990 ft. from S and E of Sec. 58, Blk. E, E.L.&R.R. Sur. ... Drlg. 4,250 ft.

TOM GREEN COUNTY

Cosden Oil Co.'s No. 1 William Anson, 2,310 ft. S, 330 ft. W of NE cor., Sec. 20, Blk. 24, H.T.C.R.R. Sur. ... Spudded.

Ellis' No. 3 Lewis, 1,350 ft. S and 450 ft. E of SW cor. Jas. Webb Sur. 77, but in Albert Black Sur. 75 ... Shut down 485 ft.; show oil 390 ft.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW, Sec. 1,628, E. H. Dinger Sur. ... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.

Phillips Pet. Corp.'s No. 1 Gulden, 1,250 ft. from N and 1,583 ft. W of Sec. 77, James Webb Sur. ... Drlg. 2,735 ft.

E. W. Wiley et al's No. 1 Maier, 200 ft. from E, 110 ft. from N, Sec. 6, Blind Asylum Land ... Show oil 418-20 ft.; total depth 632 ft.

UPTON COUNTY

Cordova Union Land Co.'s No. 1 fee, 330 ft. from S and E line of Sec. 1, Blk. 1, M.-K.-T.R.R. Sur. ... Location.

Eppenauer Drlg. Co.'s No. 3 Chaney, 1,147 ft. from N and 990 ft. from W, Sec. 18, Blk. 3, M.-K.-T. Sur. ... Drlg. 2,035 ft.

VAL VERDE COUNTY

A. Bluhm's No. 1 Yoast, 1,760 ft. N, 600 ft. W of SE cor., Sec. 31, Blk. 3, I.&G.N. Sur. ... Location.

Independent Operators' No. 1 Whitehead, SE SE, Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ... Shut down 5,360 ft.

O. O. Owen's No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ... Drlg. 5,757 ft.

Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line, Sec. 33, Blk. D-8, E.L.&R.R. Sur. ... Show oil 1,525 ft.; fishing 3,035 ft.

Valvert Oil Corp.'s No. 1 Bassett, C NE Sec. 47, Blk. Y. ... Shut down 4,009 ft.

WARD COUNTY

Atlantic and Delmar's No. 7 Hayzlett, 2,070 ft. from NW and 1,878 ft. from SW, Sec. 17, Blk. 5, H.&T.C. Sur. ... Shut down 2,520 ft.; top pay 2,484 ft.; shot twice; cleaning out.

Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW, Sec. 18, Blk. 5, H.&T.C. Sur. ... Show gas 1,960-70 ft.; filling up with sulphur water 2,520-27 ft.; salt water 2,545 ft.; plugged back to 2,477 ft.

R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C.R.R. Sur. ... Shut down 380 ft.

Penn and Atlantic's No. 1-B Pecos Mercantile Co., 990 ft. from NW and 2,310 ft. from NE, Sec. 16, Blk. 34, H.&T.C. Sur. ... Rigging up.

Tex-Oil Prod. Co.'s No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 152, Blk. 34, H.&T.C.R.R. Sur. ... Shut down 5,077 ft.

Richardson's No. 3 O'Brien, 322 ft. from N and 1,680 ft. from W of Sec. 5, Blk. F ... Drlg. 2,545 ft.

Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17, is N and S, 220 ft. S and 1,910 ft. W, Sec. 17, Blk. 5 ... Standard rig.

Shipley et al's No. 1 Monroe, 330 ft. SE SW, Sec. 3, Blk. 1 ... Drlg. 1,350 ft.

J. E. Smith's No. 1 Clement, 152 ft. SW of NE line and 153 ft. SE of NW line, Lot 7, Sec. 7, Blk. 32, H. & T.C.R.R. Sur. ... Shut down 2,230 ft.; estimated 1,000,000 ft. gas.

Sturm & Paine's No. 1 Cummins, 748 ft. from NE and 155 ft. from NW of Sec. 7, Blk. 32, H.&T.C.R.R. Sur. ... Total depth 2,350 ft.; shut down.

Sun Oil Co.'s No. 1 Sealy, 330 ft. from N and E of Sec. 88, Blk. F, G.M.M.B.&A. Sur. ... Shut down 2,563 ft.

WINKLER COUNTY

Atlantic & Maxwell's No. 1 Daugherty, 1,650 ft. from S and 2,310 ft. from E, Sec. 16, Blk. 74, Public School Land ... Location.

A. W. Phillips' No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ... Top salt 1,300 ft.; show oil 2,775-85 ft.; drlg. 2,875 ft.

Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ... Shut down 3,880 ft.

Shell and The Texas Company's No. 1-B Cowden, 600 ft. from S and W of Sec. 39, Blk. B-5, Public School Land ... First gas 2,290 ft.; increase 2,530 ft.; total 3,500,000 ft. gas (estimated); moving in rotary; drlg. by tools 2,852 ft.

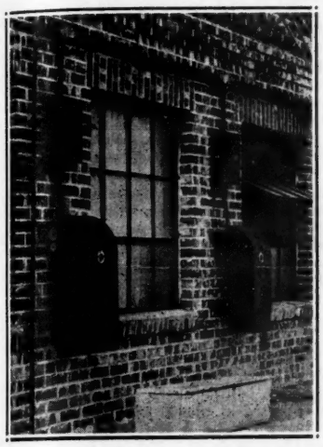
Simms Oil Co.'s No. 1 Sealy, C of SE Sec. 49, Blk. F, G.M.M.B.&A. Sur. ... Shut down 541 ft.

Practical Suggestions in Refining

By W. T. Ziegenhain

STARTING SWITCHES INSTALLED OUTSIDE

The Texas Pacific Coal & Oil Co. has taken extra precautions in the design of the pump house in its Fort Worth, Tex., refinery by placing the pump control



Method used by the Texas Pacific Coal & Oil Co. in its Fort Worth refinery of safeguarding against possible fires in the pump house as a result of an electric spark. Control switches for the pumps are conveniently placed outside the pump house.

boxes on the outside. The motors are of the induction type and there is little chance of a spark igniting vapors inside the building. The building is well ventilated as may be seen in the picture but this added means of minimizing the danger has proved practical in use and the investment remains the same.

In many respects, outside switches are more convenient than inside switches and may be used to particular advantage where individual pumping units perform a single duty and where there are no inside manifolds to check over before starting the pump.

OFFER REFINERY COURSES

The Massachusetts Institute of Technology is offering two special courses in petroleum refining at Cambridge, Mass., July 7 to August 9 under the auspices of the department of chemical engineering. The first of these is: Dynamics of Fluids and Flow of Heat, by Dr. T. K. Sherwood, and the second, Distillation, Rectification and Absorption, by Dr. W. K. Lewis. The courses will deal with the fundamentals underlying the subjects and will illustrate the technique of applying them to practical situations by the presentation and solution of quantitative problems. Although no attempt will be made to teach the details of petroleum technology or refinery practice, the illustrative material will be taken from the petroleum industry and every effort will be made to emphasize the connection between theoretical analysis and engineering practice.

The work is planned primarily to meet the needs of technical men in the petroleum industry, who, though possessing a sound engineering and chemical background, lack specialized training in the fundamentals of fluid dynamics, flow of heat, and the mechanism of interaction phases. Registration for the work will be limited to men with adequate training along engineering and chemical lines, who have also had industrial experience in petroleum refining or in other industries in which the design or operation of heat transmission equipment, stills, rectifying columns, etc., is of importance.

DESIGN HEAT EXCHANGER FROM FITTINGS TO MEET EMERGENCY

To meet an emergency and for limited use, the Texas Pacific Coal & Oil Co.'s engineers have designed a heat exchanger which may be quickly fabricated from standard pipe and fittings. A picture of one section of such an exchanger is shown here and the method of assembling is almost self evident. The outside sections are made up of standard 6-inch pipe and 6-inch flanged ells. Inside each of the straight length of 6-inch pipe is a bundle of five standard three-quarter-inch pipe

Section of heat exchanger assembled at Texas Pacific Coal & Oil Co.'s Fort Worth, Tex., refinery made from standard pipe and fittings.

with the ends welded into a one-quarter-inch tube sheet. This in turn is welded tightly around the inside of the 6-inch pipe at each end. The tubes are thus sealed in place in each length of pipe in a manner similar to the tubes in a boiler. Where several sections are to be put together to provide for the necessary amount of exchanger surface for a given job, cross-over connections are set in each end. These connections are made from short nipples cut from 3-inch pipe and flanged together. They must be carefully cut and welded into the sides of the 6-inch pipes so the flanges make a good connection. This is the only difficult portion of the assembling of the exchanger and a simple method to use in assuring a good fit is to cut the holes in the two 6-inch sections where the connection is to be made and then connect the two sections with the two ells. The short 3-inch nipples are then slipped into the respective holes in the 6-inch pipes and connected together at the flange. Then it is an easy matter to weld the nipples to the 6-inch pipes and all connections will necessarily be perfect in case it is necessary to take it apart for any reason.

A 6-inch to swage nipple serves as a means of making a connection the tubes of the exchanger and a 3-inch swage nipple welded into the 6-inch pipe serves as a connection into the shell of the exchanger.

Advantages and Limitations

The exchanger has proven relatively efficient and may be assembled at a low cost. It may be made up at times when work is slack for the pipe fitting gang. Its limitations are recognized in that the tubes may not be easily replaced should they leak inside the shell. For this reason it is not suggested to use this exchanger in service where there is appreciable corrosion. It would be possible to weld a heavier tube sheet into the 6-inch shell, and roll the tubes in position instead of welding them, in which case the defective tube could be replaced but this would materially add to the cost. This exchanger has a relatively high salvage value since all that is necessary to recover the tubes inside the shell is to cut off the ends of each section below the tube sheet. Two cuttings will free all of the tubes with only a few inches loss in length and the loss on the 6-inch pipes will approximate 1 foot each. The ells, flanges and nipples will also have a salvage value.

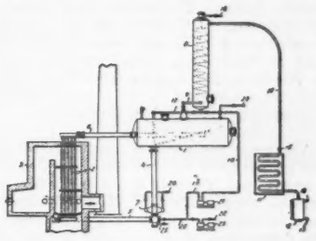
UTILIZE SHORT BENT PIPE SECTIONS

A welder at the Stoll Oil Refining Co.'s plant in Louisville, Ky., is seen making a sweeping bend by welding a number of short bent sections together. These short sections were cut from reclaimed pipe with bent ends. There was a sufficient number of these to supply the length of bent section needed and answered the purpose at a low cost.

Recent Patents

1,761,340. Art of Cracking Hydrocarbons. Eugene C. Herthel, Chicago, Ill., assignor to Sinclair Refining Co., New York, N. Y., a corporation of Maine. Filed October 27, 1927. Serial No. 229,099. One claim. (Cl. 196—50.)

An improved method of cracking high-boiling easily cracked hydrocarbon oils, of which not more than 50 per cent boil off up to 600° F. at atmospheric pressure, for the production of gasoline, which comprises maintaining in cyclic circulation through a heating zone, a vaporizing zone and a refluxing operation all under superatmospheric pressure a low-boiling refractory stock, introducing the high-boiling easily cracked stock to be cracked into direct contact with the vapors in the refluxing operation and circulating the unvaporized part



of this high-boiling stock preheated by the heat exchange in the refluxing operation to the heating zone in admixture with reflux condensate from the refluxing operation, heating the oil mixture to a cracking temperature under a superatmospheric pressure low enough to permit vaporization of the low-boiling refractory stock at the maximum temperature to which the oil mixture is heated, circulating the vapors separated in the vaporizing zone to the refluxing operation, discharging unvaporized oil from the vaporizing zone, taking off from the refluxing operating and condensing a vapor mixture including vapors of the low-boiling refractory stock and of the cracked gasoline product, and supplying a low-boiling refractory stock not less than 90 per cent of which boils off up to 550° F. to the oil mixture circulating to the heating zone, the average rate of supply of the low-boiling refractory stock not less than 90 per cent of which boils off up to 550° F. being maintained in excess of 5 per cent and the average rate of supply of the high-boiling easily cracked stock not more than 50 per cent of which boils off up to 600° F. being maintained in excess of 50 per cent of the total rate at which fresh stock is supplied during the operating excluding initial charge.

GULF COAST FIELDS

(Continued from Page 50)

treme south side of Humble, late in the week had passed that level and was drilling below 8,100 feet. This well is considerably south of the line of 5,000-foot producing wells which skirt the south flank of the dome. The well is being drilled by H. R. Cullen. The only other domes around which 8,000-foot holes have been drilled are Jennings, in coastal Louisiana, and Barbers Hill of coastal Texas.

Barbers Hill Wildcat Flows

At Barbers Hill, Humphreys Corp.'s No. 1 Morgan, wildcat on the north side of the dome, was flowing by heads late in the week, making an estimated 200 bbls. daily. The well, which is 6,404 feet deep, is the discovery well of the north flank. It was brought in several weeks ago flowing 1,000 bbls. daily but sanded up quickly and since then has been fishing wash pipe. Late in the week this company was still trying to set screen in its No. 2 Scott, another wildcat on the north side but some distance to the east of the No. 1 Morgan. The latter is at a total depth of 7,296 feet. It lies between the Morgan wildcat and the north edge of production on the east flank. Two other completions were recorded at Barbers Hill, these being Sun Oil Co.'s No. 7 J. Wilburn on the southeast side, which found sand comparatively high up on the dome at 3,761 feet, and Yount Lee Oil Co.'s No. 14 Chambers on the south side of the dome.

Other completions on the coast were of little interest. A small well was added at Port Barre, St. Landry Parish; one at Liberty; two at Hull; two at Spindletop, and one at Esperson. Among abandonments were wildcats at Big Hill, San Felipe, Hankamer, Danbury, Fannett and Welsh.

LA.-ARK. FIELDS

(Continued from Page 47)

rig up for No. 1 Fee, 2,350 feet west and 1,275 feet north, southeast corner of William Hamilton Survey in Marion County. Location is in a nest of old dry holes and several producers on a 9,000-acre block about 7 miles west of Vivian, Caddo Parish. Timberlake and others, drilling No. 1 Tidwell in the James Eskell Survey of Bowie County, 25 miles west of Texarkana, topped the Nacatoch at 760 feet, the Annona chalk at 1,229 feet and are coring in the chalk at 1,635 feet on this scheduled 3,000-foot test.

ARKANSAS

Arkansas, the north central part of it, had its share of wildcat excitement with a report that Tegmeir & Luckett's No. 1 Falcon, Section 36-1-21, had developed more or less of a gas show at 4,160 feet. The description of this wildcat is that of the permit but the maps show the section as being in Garland County about 20 miles north of Hot Springs. Red Bank Oil Co. tested salt water with a show of gas at 2,155 feet in No. 1 Edtin, Section 33-10-26, Franklin County, and is drilling at 2,250 feet. J. R. Lockett has assembled a block of 8,000 acres in Grant County and has derrick up for No. 1 Cunningham, NE NE, Section 11-5-16, around which the block centers. Joe Hurley is financing a well on his block of 6,700 acres in Bradley County he has had for some time, most of it in fee, and expects to be drilling during the next few weeks. The acreage is in Townships 15 and 16-10 just north of the old Vick gas blow-out. Arkansas-Louisiana Pipe Line Co. has made location for No. 1 J. E. Moore, SE NE, Section 16-9-21, Pope County, half a mile west of No. 1 McFaddin, a gasser in Section 15.

L. K. Hamilton's No. 2 Arnold & Doyle in Section 23-15-16, Ouachita County, Smackover, pumped 50 bbls. from 2,075 feet and the other two completions were in the Urbana district of Union County. H. L. Hunt abandoned No. 1 Trammell, SW NW, Section 28-18-12, in volcanic ash at 3,886 feet. A test at 3,414-29 feet resulted in 5,000,000 feet of gas with a spray of salt water and another at 3,556 feet resulted in 10,000,000 feet of gas with salt water. Simms Oil Co.'s No. 1 G. G. Simmons, Section 10-18-13, was a salt water hole at 3,535 feet. Marine Oil Co. has derrick up for No. 4-A Thompson, SW NE, Section 10-18-13, just south of No. 3-A, the producer which started all the new activity in Urbana and is still flowing approximately 1,000 bbls. of fluid, most of which is oil.

While negotiating for the sale of the biggest part of his 100,000-acre block in Concordia Parish, Louisiana, A. C. Glassell has rig up on each of two blocks in Wilkinson and Adams Counties, Mississippi, due east across the river from the Louisiana block on which he has a potential 15,000,000 or 20,000,000-foot gasser at 1,453 feet. He has approximately 40,000 acres altogether and one of the rigs is on the Stowers land, NE NE, Section 28-8-2w, Adams County, and the other in Section 1-5-2w, Adams County. Gulf Refining Co. plugged back to 2,500 feet on No. 1 Rainey, Section 13-5-1e, Rankin County, total depth 3,607 feet, and made another test of the gas they got at 2,520 feet last April with approximately the same results. Testing tool was open for an hour and a half, in which time the well blew at the rate of 15,000,000 feet of gas, 4,000 bbls. of salt water and a small show of oil. Closed in, it rocked up 420 pounds in 25 minutes. Louisiana Gas & Fuel Co. tested a small show of gas in chalk rock at 2,503 feet on No. 1 Toole, Section 28-6-1e, Hinds County, and is arranging to set a string of 8⅛-inch at that depth.

Smackover and Champagnolle were responsible for most of the small increase —430 bbls.—in daily average runs from the pools in this district which totaled 97,485 bbls. Louisiana runs of 40,200 bbls. were practically unchanged from last week and Arkansas' average of 57,285 bbls. was 425 bbls. more than last week. Runs from the several pools were:

LOUISIANA	
Caddo, light	9,700
Caddo, heavy	2,540
Homer	3,550
Haynesville	4,610
DeSoto-Red River	5,085
Elm Grove	415
Bellevue	600
Cotton Valley	2,110
Urania	5,150
Pleasant Hill	555
Sarepta-Carterville	3,390
Zwolle	3,270
Holly	1,225
Total	40,200
Last week	40,175
ARKANSAS	
El Dorado	4,090
Smackover, light	5,280
Smackover, heavy	39,460
Stephens	900
Nevada County	1,000
Lisbon	960
Champagnolle	4,380
Mount Holly	100
Bradley	65
Urbana	1,050
Total	57,285
Last week	56,830
Both states	97,485
Last week	97,055
Decrease	430

KANSAS FIELDS

(Continued from Page 44)

Corp. has the rig up for No. 1 Geise, NW cor. SW, Section 33-25-12. The Prairie Oil & Gas Co. made location for No. 2 Newhouse, CEL SE NE, Section 1-24-11. National Refining Co.'s No. 10 Wick, SW cor. SE, Section 27-22-11, is a dry hole at 1,956 feet. Empire Oil & Refining Co.'s No. 9 Patterson "C," NW cor. SW SE, Section 36-23-11, has been completed for 125 bbls. in sand 1,832-45 feet. Independent Oil & Gas Co.'s No. 1 Wilcox, SE cor. NE SE, Section 35-24-10, is a dry hole at 2,057 feet. McGinnis and others' No. 4 Mack "B," NW cor. SW NE, Section 36-24-10, made 300 bbls. in sand 1,882-1,915 feet. The Prairie Oil & Gas Co.'s No. 5 Newhouse, CEL NE NE, Section 1-24-11, has been completed for 346 bbls. in Bartlesville sand 1,714-71 feet.

Ellis County

Phillips Petroleum Co. has the cellar dug for No. 1 Staab, CNL NE, Section 18-12-17w.

McPherson County

Gypsy Oil Co. is moving in material for No. 3 Kinney, NW cor. SW SW, Section 34-20-3w. Barnsdall Oil Co. has the rig on the ground for No. 6 Krehbiel, NW cor. SW SE, Section 4-21-3w, Voshell Pool. Gypsy Oil Co.'s No. 2 Kinney, SW cor., Section 34-20-3w, has been completed for 545 bbls. in Wilcox sand 3,356-72 feet. W. C. McBride, Inc.'s No. 2 Krehbiel, NE cor. SW NE, Section 4-21-3w, made 565 bbls. in Wilcox sand 3,406-28 feet. Barnsdall Oil Co.'s No. 5 Krehbiel, SE cor. NW SE, Section 4-21-3w, has been completed for 1,205 bbls. in Silicious lime 3,380-90 feet. Sinclair Oil & Gas Co.'s No. 4 Morehouse, SW cor. SE NE, Section 4-21-3w, made 526 bbls. in Silicious lime 3,426-37 feet. Mid-Kansas Oil & Gas Co.'s No. 8 Voshell, NE cor. SW NE, Section 9-21-3w, has been completed for 1,395 bbls. at 3,381 feet in Silicious lime topped at 3,342 feet.

Ellsworth County

Slick, Pryor & Lockhart and others' No. 1 Heiken, NW cor., Section 25-17-10w, is moving in.

Harvey County

Gypsy Oil Co.'s No. 1 Shives, SE cor. SW, Section 26-22-3w, has been abandoned at 3,798 feet.

Morton County

Argus Production Co. is building the rig for No. 1 Morgan, C SE, Section 6-33-39w.

Osage County

Briggs & Smith's No. 1 Wood, C SE NW, Section 21-14-15, is spudding.

Reno County

Shell Petroleum Corp. is moving material in for No. 1 Bopp, NW cor., Section 11-25-5w. Independent Oil & Gas Co., Sinclair Oil & Gas Co. and others' No. 1 Doles, SE cor. NW, Section 31-25-4w, is a dry hole at 4,125 feet.

Rooks County

Billings and others staked location for No. 1 Livengood, SW cor. NE, Section 11-9-16w. Krueger and others' No. 1 Tatkenhorst, SE cor. SW, Section 11-9-16w, made 40 bbls. in sands 3,228-3,322 feet and 3,329-3,459 feet.

Sedgwick County

Wentz Oil Corp.'s No. 1-A Bright, SW cor. SE NW, Section 1-26-1w, is a rig.

Stevens County

Missouri Kansas Pipe Line Co. and others' No. 1 Parson, C NW, Section 4-31-37w, is a rig under construction. Location has been made for No. 1 Howell-Rinehart, C NE, Section 23-31-39w. Argus Production Co. made location for No. 1 Wagner, C SE, Section 17-33-38w. Missouri Kansas Pipe Line Co. and others made location for No. 2 Crawford, C NW, Section 36-33-38w. No. 1 Crawford, C NE, Section 32-33-37w, is a location. Argus Production Co. made location for No. 1 Fee, C NE, Section 15-34-39w. The rig is on the ground for No. 1 Johnson, C SW, Section 13-35-39w.

Sumner County

Schwartz and others made location for No. 1 Boyer, SE cor. SW NE, Section 36-31-2. Champlin Oil & Refining Co.'s No. 6 Latta "B," SE cor. NW, Section 9-30-2w, has been abandoned at 3,200 feet. Shawver and Continental Oil Co.'s No. 2 Norrish, C NE SE, Section 27-34-2, is dry and abandoned at 1,642 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 56)

on Section 18-51-100, is shut down at 4,828 feet. Texas Production Co. expects the red beds at 2,913 feet in its No. 1 Freeman, Section 20-51-100, which, at last reports, was drilling at 2,900 feet. Lenco Petroleum Co.'s No. 3, Section 33-51-100, is drilling at 2,420 feet.

The Cody Petroleum Co.'s No. 1 Danker, SW cor., Section 22-57n-98w, Big Polecat Dome, is bottomed at 3,340 feet and has collapsed casing at 2,200 feet.

Midwest Refining Co.'s No. 31 Frannie, SW cor. NE, Section 25-58n-98w, is drilling in red shale at 2,000 feet, and its No. 31 Rosenberg, SW cor. SE, Section 24-58n-98w, is drilling at 1,850 feet in red and gray shale.

The Yellowstone Petroleum Co.'s No. 1, NW NE SE, Section 7-57n-97w, on Sage Creek, is reported to have flowing water in the Madison lime at 3,725 feet.

The California Exploration Co.'s No. 2, Pitchfork Dome, NW NE, Section 14-48n-102w, is drilling at 3,130 feet.

Hot Springs County

Midwest Refining Co.'s No. 8 Weeks, on Wagonhound, NW SE, Section 6-44n-98w, is drilling in white sand at 2,200 feet.

The Gebo Consolidated Oil Co.'s well on Gebo Dome near Thermopolis, SE, Section 23-44n-95w, is preparing to resume operations after a short shut down. The well is bottomed at 1,535 feet and 16-inch casing has been set at 1,345 feet.

Natrona County

The Midwest Refining Co.'s No. 11, Midway Dome, NE NE, Section 23-35n-79w, is drilling in hard blue shale at 4,142 feet.

Chicago Oil Co.'s No. 1, at Poison Spider, SW, Section 1-33n-83w, is drilling below 2,970 feet. On drilling into the first sand of the Amsden series the company found the sand saturated but only 5 feet thick. The well will be drilled deeper.

Midwest Refining Co.'s No. 29DT, NW, Section 35-40n-79w, deep test of the Salt Creek oil field, which encountered flowing water in the Madison lime at 4,605 feet, has been mudded and at last reports the operators were cleaning out at 4,525 feet. The Argo Oil Co.'s No. 7 Wehopeso, SW NW, Section 19-39n-60w, is cleaning out after landing 4½-inch casing at 2,748 feet in the Tensleep.

Carbon County

The Midwest Refining Co. is drilling at 4,470 feet in dark gray shale in their No. 31 Eades, SW cor. SE, Section 1-18n-17w, Dutton Creek. The Muddy sand is expected at about 4,800 feet.

The Producers & Refiners Corp. is coring black shale at 1,750 feet in its No. 1 on the O'Brien Springs structure, Section 11-24n-88w. The 3-inch tubing is at 1,610 feet.

The Producers & Refiners Corp.'s No. 8, NE NW, Section 7-26n-89w, Wertz Dome, a gasser in the Sundance which is being deepened to the Tensleep, is cleaning out after recovering tools lost at 4,150 feet.

The test of the Red Feather Oil Co. on the Baggs structure, SW SW, Section 35-13n-92w, has reached a depth of 2,320 feet and is drilling ahead in shale.

Fremont County

Producers & Refiners Corp.'s No. 10, Section 14-32n-95w, Sand Draw, is drilling in black shale at 2,920 feet and has succeeded in penetrating the gas sands of the Frontier formation which are under very heavy pressures. Its No. 2 on the Muskrat Dome, SE NW, Section 33-34n-92w, is drilling in shale at 2,102 feet.

Weston County

Osage Trust Co. had three completions at Osage the past week. No. 4, SW SW NW, Section 13-46n-64w, is flowing 100 bbls. from sand at 1,532-56 feet, its No. 6, CWL SW NW, Section 46, Range 64, is flowing at the rate of 150 bbls. a day and from sand at 1,531-43 feet, and No. 7, NW SW NW, Section 13-46-65, will pump 15 bbls. The Omaha Syndicate's No. 3, NE SW NW, Section 8-46-63, is rigging up. Dornacher and others' No. 2, SE SE, Section 12-46n-64w, is drilling at 460 feet. Wesco Oil Co.'s No. 5 Fee, SE NE SE, Section 13-46n-64, will pump 15 bbls., and No. 6, NW NE SE, Section 13-46-64, is a location. Kelso Oil Co.'s No. 1 State, SE cor. NE, Section 11-46-64, is dry at 1,685 feet. The Osage-Wyoming Oil Co.'s No. 1 Witzell, SE NE NW, Section 30-46n-64w, is drilling at 1,100 feet, and Tom Don's No. 4, CNL NW SE, Section 20-46-63, is drilling at 400 feet. M. K. Mouser's No. 1 Bock, NW cor., Section 2-46-64, is drilling at 400 feet.

Sweetwater County

Mountain Fuel Supply Co.'s No. 1 Senator Sullivan, C SW SW, Section 10-16n-104w, in the South Baxter Basin Field, has been completed as a 12,000,000-foot gas well at 2,766 feet. The well was drilled into the Sundance at 3,765 feet but as no additional gas was developed in that horizon, the hole was plugged back to 2,766 feet.

Sublette County

Midwest Refining Co. is underreaming at 2,018 feet in its test at Little Grays

River in Sublette County, SE, Section 25-37-117.

UTAH

Box Elder County

The Lenora Mining & Milling Co., which has been making a diamond drill test in the Rozel area, NW SW NW, Section 9-8n-7w, has temporarily shut down to make extensive repairs to its equipment.

Carbon County

The Price River Petroleum Co.'s test at Price, SW SW NE, Section 16-14s-10e, is drilling below 3,218 feet in 5⅛-inch hole.

Grand County

The Utah Sounthern Oil Co. has pulled pipe and has abandoned its test at Cisco Springs, SE, Section 26-21s-23e, after encountering pre-Cambrian granites at 2,297 feet. Further program not yet outlined.

IDAHO

The Grand Teton Oil Co.'s No. 1 Blevins, SW SE, Section 33-5n-44, Teton County, Idaho, is drilling at 2,780 feet in a dry hole. The last 100 feet is believed to have been in the Mowry shale. This same company's No. 1 Bevan, NW SE, Section 28-5n-44e, is fishing for a string of tools.

COLORADO

Moffat County

The Midwest Refining Co. has shut off its 30,000,000 feet of gas encountered at 2,857 feet on Bell Rock Dome, 9 miles west of Craig, Colo., and is drilling ahead to its original objective expected around 4,000 feet. No production had been expected above this depth, and this discovery in an unidentified sand created considerable excitement in Craig and Denver. Finding gas so near Craig insures a supply for domestic and industrial consumption in that community, and at the same time greatly enhances the value of the structures in that vicinity which have not been tested, particularly the Craig structure which is very similar to the Bell Rock. It is believed that the gas came from the base of the Mesa Verde formation.

Midwest Refining Co.'s No. 19SD Parkinson, NW SW NE, Section 22-4n-92w, Iles Dome, is bottomed at 3,459 feet in white sand with 2,000 feet of oil in the hole. It is in the Second Morrison sand and has been completed as a small oil well.

Texas Production Co.'s No. 1 Berlin, SW NE, Section 19-12n-100w, was drilled 21 feet deeper when it lost the bit and is attempting to sidetrack at a depth of 2,594 feet.

Rio Blanco County

The Magnolia Petroleum Co.'s (White Eagle Oil & Refining Co.) 1-A Fordham, NW SW, Section 9-2s-96w, is drilling at 4,435 feet in brown shale.

Jackson County

The test of the Producers & Refiners Corp. at Pole Mountain in Jackson County, No. 1 Hendershot, NW SE NE, Section 2-6n-91w, which rumors credited with a show of oil at 4,000 feet two weeks ago has been plugged back to 3,955 feet. No authentic report has been secured as to the value of the reported oil show.

The Midwest Refining Co. is drilling to the southeast on the same fold but upon a separate dome known as the Buffalo Creek structure. This well is No. 21-X Rich, SW NW, Section 9-6n-80, and is drilling in gray lime at 3,883 feet with the 8⅝-inch casing at 3,745 feet.

Park County

The South Park Oil Co.'s No. 1 Milligan, NE SE, Section 13-8s-76w, is drilling at 350 feet.

Montezuma County

Mesa Verde Ranch Co.'s No. 1 Haller, SE cor., Section 29-36n-14w, at the entrance of the Mesa Verde National Park, has cased the hole and is preparing to make a test of the gas show encountered in the Dakota at 740-64 feet.

Dolores County

Transcontinental Oil Co.'s No. 1, C NW, Section 30-41n-16w, is drilling at 6,350 feet.

Mesa County

Argo Oil Co. has succeeded in sidetracking parted casing and has landed the 6¼-inch casing at 2,741 feet in its No. 1 Hoel, NE cor., Section 23-8s-104. The total depth of the hole is 3,000 feet. A dry sand at 2,800-40 feet probably was the Dakota.

Morgan County

Indian Territory Illuminating Oil Co.'s No. 1 State, NE NE, Section 16-1n-57w, is drilling at 1,700 feet.

Weld County

Platte Valley Petroleum Co.'s No. 1 Patterson, SW SW, Section 24-6n-61w, Greasewood Dome, has reached a depth of 6,228 feet and is attempting to land casing at that depth.

Douglas County

Perry Park Oil Co.'s No. 1 Cannon, NE SE NW, Section 11-9s-68w, is spudding at 350 feet in a 2,000-foot test of the Pierre shale. Ten-inch casing was set at 97 feet.

El Paso County

Utemoor Syndicate's No. 2 Carson, NW NE NE, Section 10-16s-66w, is reported drilling below 700 feet and using gas from No. 1 Carson for fuel. Gas in No. 1 was encountered at 1,252 feet.

ROCKY MOUNTAIN PRODUCTION

Daily average pipe line runs from the various pools in the Rocky Mountain area for the week ending June 28:

WYOMING

Salt Creek	28,200
Frannie	310
Big Muddy	2,010
Oregon Basin	6,410
Dutton	60
Elk Basin	860
Byron	10
Warm Springs	120
Lovell	20
Ferris	20
Grass Creek	2,120
Hamilton	780
LaBarge	2,050
Lance Creek	....
Lost Soldier	830
Osage	880
Poison Spider	120
Rock River	2,150
Border	100
Lander	....
Simpson Ridge	50
Teapot Dome	30
Dallas Derby	240
Mule Creek	....
Hudson	270
Cody	....
Total	47,640

MONTANA

Cat Creek	1,160
Kevin-Sunburst	5,320
Pondera	2,410
Lake Basin	70
Total	9,460

COLORADO

Moffat	1,374
Fort Collins	1,340
Florence	601
Iles	1,073
Tow Creek	398
Boulder	25
Rangley	50
Total	4,861

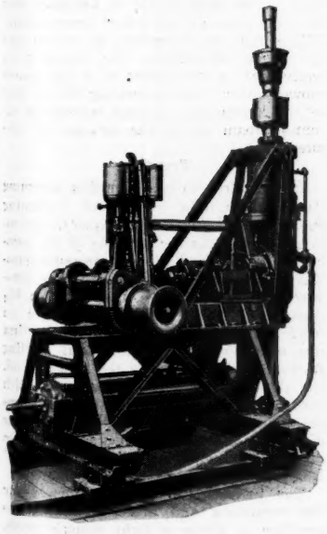
NEW MEXICO

Hogback	460
Rattlesnake	1,435
Table Mesa	100
Artesia	694
Cap Rock (Maljamar)	983
Jal	1,206
Hobbs High	15,475
Getty	....
Lea	6,178
Miscellaneous (Lea County)	422
Total	27,053
Grand total	89,014

MONTANA

The Border Field is very active. The Radigan Farbo well in Section 1-37-4, on the Montana side, is a 250-bbl. producer and making around 6,000,000 feet of gas. Mid-Continent's No. 2 reached the pay and is making 3,000,000 feet of gas and about 100 bbls. of oil. On the Canadian side, the Southern Alberta Exploration Co. reached the Sunburst sand and has a small producer which will be drilled to the deeper pay. Capitol's No. 2, Section 21-1-16, looked like a small gasser after the Huso and the Dalco wells came in dry, but when the Capitol reached the sand it found production esti-

Core Drill straightens holes—
many other advantages on deep tests



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A layer of sandstone on end, at about 70 degrees, deflected a cable tool bit. Cementing and shooting were tried but the bit continued to slip on the sandstone, and drill a crooked hole.

Then a Sullivan Core Drill was brought to the job. The bit needed only 1/32-in. clearance. Sensitive feed control on the Sullivan drill put just enough pressure on the bit to make it cut. The hole was straightened easily. This is only one of a number of crooked holes which have been straightened by Sullivan Drills.

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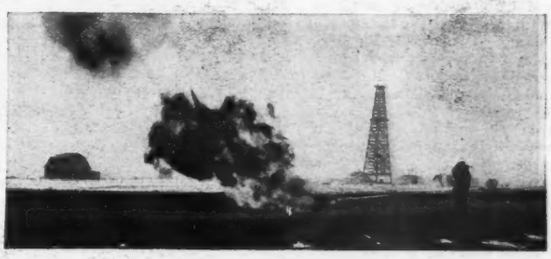

Burning the gas off a new well in Turner Valley.

cores show the slightest indication of oil, so that you cannot run by it unknowingly. The cores show seats for casing. The drills make small holes, effecting substantial savings in time, operation, and equipment.

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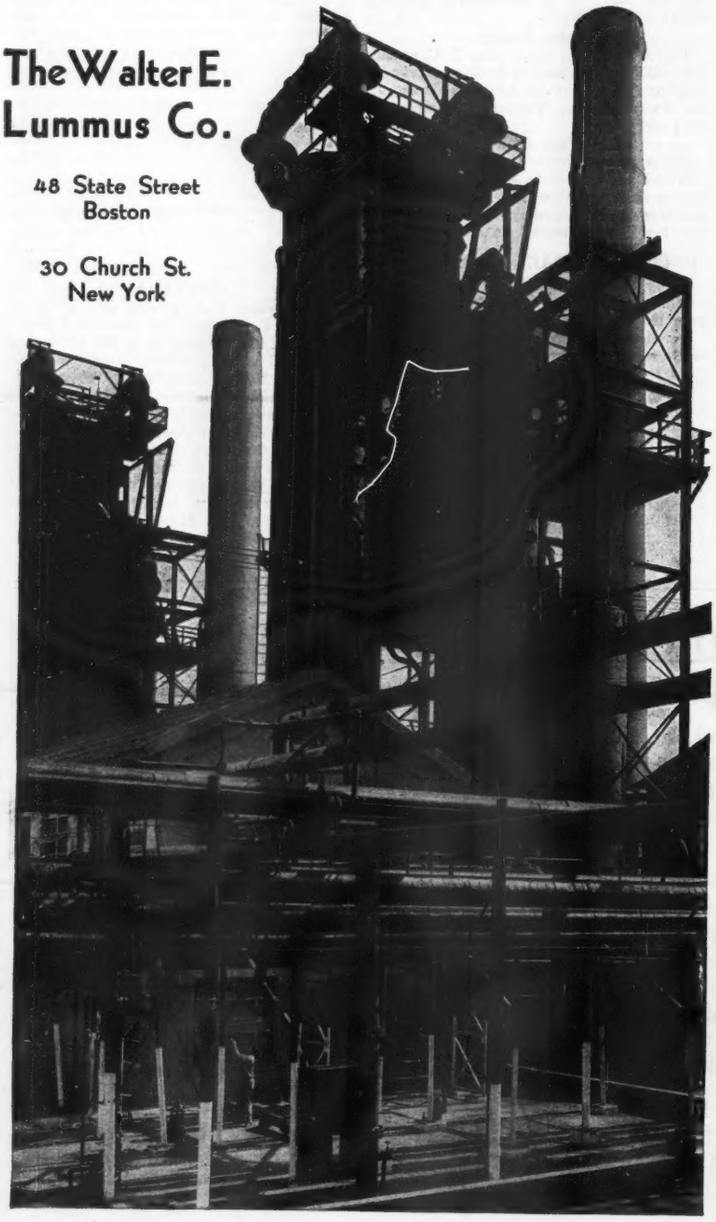

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PETROLEUM PLANTS

mated at 100 bbls. daily. This gives the Border Field nine producing wells and three dry holes to date.

The new strike of the Sunburst Oil & Refining Co. on the Bearsden Dome, northeast of the Sunburst Field, was tested for production the past week and showed for a 30-bbl. well when the head was off and the well settled down to a steady production. This well also has 7,500,000 feet of gas in the Cat Creek sand.

CANADA MAY RETALIATE WITH TARIFF ON OIL

(Continued from Page 30)

good accomplished by recent co-operative restriction measures within the industry.

The new American tariff law has aroused widespread bitterness abroad, and there is determined agitation in many of the countries most seriously affected by the new duties to devise retaliatory tariff legislation which would strike back at the United States for its increases in import duties on products in various lines.

Another flare-back from the enactment of the new tariff law which would indirectly adversely affect the American petroleum industry is the plan of a number of principal foreign consuming countries to greatly increase their import duties on American made automotive equipment. This trend is marked, and leaders in the American automobile industry look for a sharp curtailment in their export sales, which have already shown a substantial decline in the first half of the current year. This drop in export sales will naturally tend to slow down the normal increase in consumption of gasoline and lubricating oils abroad, and regardless of foreign tariffs on oil imports will deprive American refiners of the normal growth in export sales upon which many operating schedules have been based.

Russia's Position

The Soviet oil trust is rapidly expanding production of both crude and refined products as part of its famous "Five-Year Plan," and while sales of Russian gasoline, kerosene and lubricating oils are showing substantial increases in world markets, there is nevertheless determined opposition to the sales of Soviet products still existent in many countries. Notwithstanding the truce between the Soviet oil syndicate and prominent oil concerns operating in Great Britain, it is known that Sir Henri Deterding, head of the Royal Dutch-Shell, is still actively opposed to the Soviet trust's operations, and the Russian state oil trust may look for continued opposition from Royal Dutch-Shell interests throughout the world until the question of reparation for foreign oil properties confiscated by the Soviet is finally adjusted to the satisfaction of the former owners of Russian oil properties.

There is scarcely a nation among the principal oil consuming countries not adversely affected in some shape or manner by the provisions of the new tariff measure which has just gone into effect, and determined retaliatory action against American products may be expected from many of them.

Executives of large American oil companies engaged in export operations are naturally not willing to comment on the outlook for future retaliatory tariff legislation by consuming countries because of the enactment of the new tariff law in this country, but the action initiated by Canada has nevertheless given rise to considerable concern. In some quarters of the trade, the belief is expressed that foreign legislation against American products will be directed more at those manufactured articles in the luxury or semiluxury class, and that necessities, such as foodstuffs and petroleum will not be discriminated against, or at the worst, only minor import duties will be imposed. There is a general feeling, however, that Canada's action is but the forerunner of similar retaliatory moves in other countries, and that the American export volume in petroleum and its products is due for a determined attack by other oil producing nations with the position of these competitor nations strengthened by the widespread anti-American sentiment which has developed in many foreign countries as a result of the new tariff law.

An immediate reaction to any general move to raise a tariff wall against petroleum and refined products exports from the United States, it is believed, will be an early revival of the oil industry in Mexico. Royal Dutch-Shell has substantially increased its operations in that country during the past year, and other companies, including several American producers, have been thoroughly surveying the Mexican situation with a view of expanding producing and refining operations in that country.

The Persian oil fields, which have been operating on a curtailment program for the past several years, would also come in for a boom, it is believed, and Rumania, where the government has just undergone a change that is expected to be beneficial to foreign capital, would also benefit greatly through broadening of its markets should unfavorable tariff legislation in European countries shut out or curtail imports of American petroleum products.

OPERATING UNIQUE P.D. RERUN UNIT

(Continued from Page 38)

mately 4 feet is maintained in the knock-back reservoir in the base of the tower, the position of the overflow line back to the still governing the height of the liquid level in the tower. Just above the outlet for the knock-back is the vapor inlet from the shell still. This serves as an inlet for the steam also.

The drawing also shows a system of lines and valves leading from the base of the tower and from the bottom of the still. The two valves in the line from the base of the tower are kept closed while in operation while the line from the still is the pump-oil for the system, taking the P.D. bottoms off continuously through a cooling box and then they go to storage as furnace oil. These lines are also used to drain the system for cleaning.

Large Amount of Steam Used

A rather large quantity of steam is used in the still to aid in bringing over the gasoline at a lower temperature. While the exact amount of steam has not been determined, the quantity is equivalent to the output of a 125 horsepower boiler. Approximately 70 per cent of the steam used in this manner is exhaust steam while the balance is live steam.

Treating

In addition to the benefits accruing from the unique method of rerunning the pressure distillate, a careful control is maintained on the treating of the pressure distillate and the raw pressure gasoline to insure color stability. The pressure distillate is first contacted with 4½ pounds of 66° acid per barrel in an orifice mixer and settled out in the first one of a series of conventional settling tanks. After separating the acid and oil, the distillate is given a water wash which removes traces of the acid and also seems to aid in improving the odor. Then the distillate passes through another series of orifice mixers where it is given a 12° Be. plumite solution treatment.

The pressure distillate is then ready for rerunning and after rerunning the gasoline is given a light caustic wash. This treatment renders the gasoline 28 plus in color, noncorrosive, and color stable.

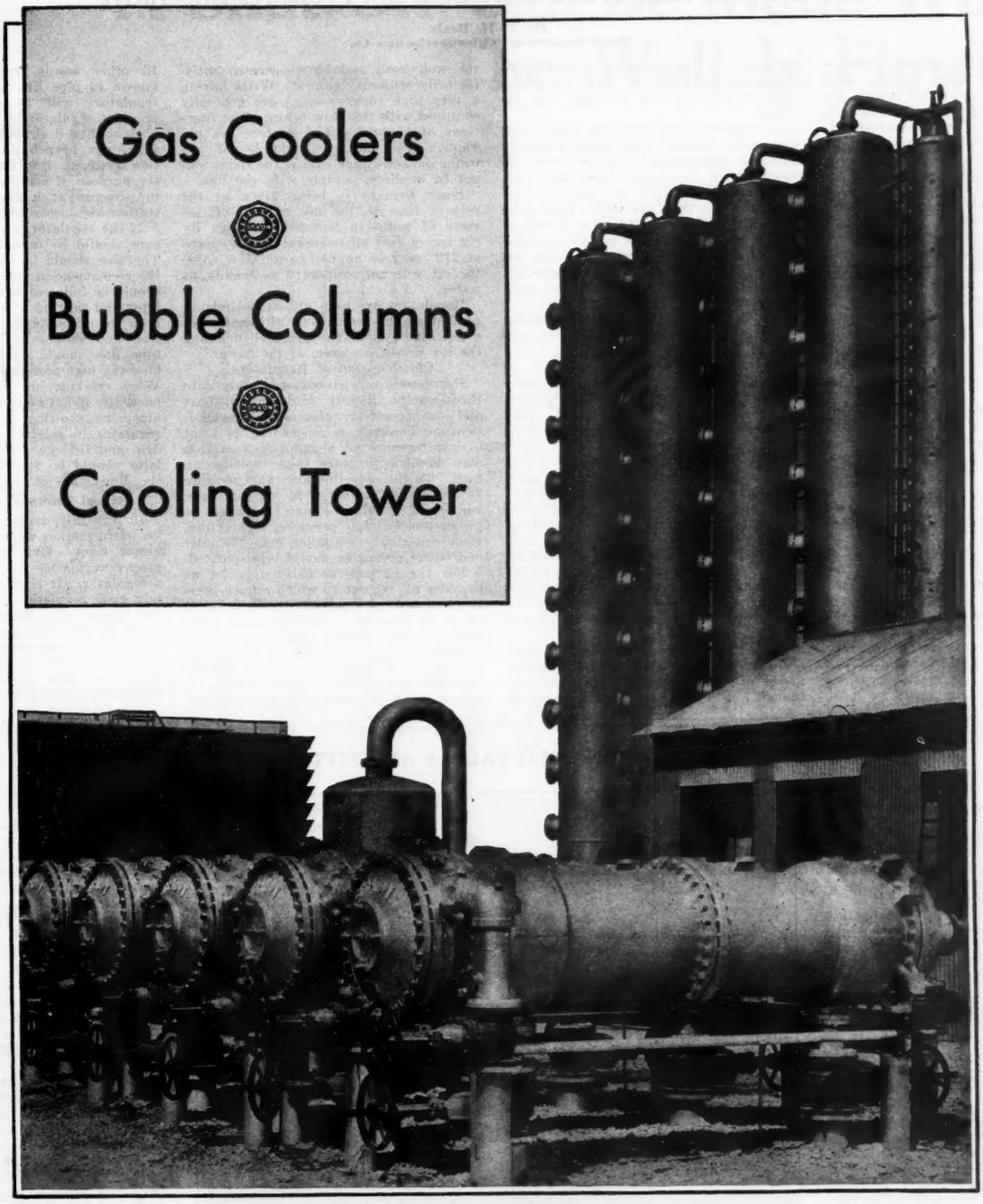
MEXICAN PRODUCTION

NEW YORK, June 30.—Production of crude petroleum in Mexico for the week ended June 21 averaged 84,429 bbls. per day, compared with 82,857 bbls. daily in the previous week. Light oil output for the week averaged 41,143 bbls. daily, against 41,428 bbls. in the previous week, with heavy oil production 41,286 bbls. against 41,428 bbls.

Gas Coolers

Bubble Columns

Cooling Tower



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Pressure Vital Factor in Moving Gas

Development and Widening Use of Orifice Meter Have Made More Efficient Control and More Constant Pressures Imperative

By T. H. Beals
Meter Department, Cities Service Gas Co.

In the natural gas industry pressure is the force which moves the gas from the well through the pipe line system and city gate measuring and reducing station to the burner of the consumer. It is similar to voltage in the electrical industry.

At the present time the trend in gas transportation is toward higher pressures. The greatest advantage of high-pressure transportation lies obviously in the saving effected by the use of smaller sized pipe for the same load conditions. However, there is an economic limit as well as a limit from an operating standpoint beyond which it is not practical to go in the matter of pressure. Compressor station equipment is more expensive, the difficulties encountered in the making of tight lines increase, and the operating hazard is high for extremely high pressures.

In operating a pipe line system the pressures which are carried should be just sufficient to insure at all times an adequate supply of gas to the consumer. Excessive pressures place a pipe line under a heavy strain and also increase the leakage from the line. Also the danger of line blowouts and hence interrupted service is increased.

From the very first the control of pressure was important but after the orifice meter was developed and gained widespread use the necessity of better regulation and more constant pressures was imperative. To have accurate measurements we must have fairly constant pressures with no sudden surges of gas through the meter. In other words, to have satisfactory measurements we must have good pressure regulation.

As it is impractical to burn gas in homes under high pressures the main line pressure must be reduced to a safe constant and satisfactory pressure, and all danger of allowing high pressures to come into the low-pressure lines must be eliminated.

The foregoing explains to a certain extent at least the important part that pressure plays in the industry and the necessity for its control.

Controlling Well Pressures

The first gas wells which were drilled were relatively shallow and consequently their rock pressure was not high. It was a simple matter to reduce the well pressure down to line pressure by throttling the control gate of the well and this is still done in many old fields. As the pressure drop across the gate is not great the gas does not cool to a temperature below 32° as it expands and any moisture which may collect in the gate will not freeze except during extremely cold weather.

At present wells with pressure of 1,500 to 2,000 pounds are supplying gas to lines which do not carry over 350 to 400 pounds. It was found impossible to make this tremendous pressure reduction simply by throttling the gate valve. Different methods are employed to effect this pressure drop without freezing the constriction. By having as little metal as possible at the point of expansion it was found that the possibility of the opening becoming clogged with ice was reduced to a minimum. All well pressure cutting devices with the exception of regulators are designed with this thought in mind.

The most common well pressure control devices are: (1) Thin plate orifices, (2) small tubes, (3) flow beans, and (4) regulators.

Thin plate orifices singly or in series are very satisfactory. These orifices are generally installed in 2-inch pipe and their size is calculated by the critical flow formula. Very little trouble is experienced due to freezing but their disadvantage is that when it is desired to take more gas from the well the orifice must be removed and a larger one inserted.

To eliminate this difficulty short tubes were used. Several short tubes, generally three in number and having respective diameters of one-fourth inch, half inch and three-fourths inch, are placed parallel in the line from the well. Each tube is equipped with a valve at each end so that it may be cut in or out as the occasion demands. This pressure-cutting device gives quite satisfactory results but it was found that sand from the wells cut the valves.

The flow bean with its variable orifice and light construction has the advantages of both the orifice and tubes.

Another Use of Regulator

Regulators are being used in some localities to reduce the well pressure down to line pressure. The Oklahoma City Field is one of the more important areas where this is being done.

In some installations three regulators are employed to make the total pressure reduction. The pressure cuts are: (1) Well pressure to 500 pounds, (2) 500 pounds to 250 pounds, (3) 250 pounds to 50 pounds. A line heater 40 feet long is placed on the line ahead of the first regulator. Two joints of 6⅝-inch casing are used in the construction of this heater. Live steam is circulated in the space between the casing and the 4-inch line from the well.

No matter what type of high-pressure reducing device is employed a line heater ahead of it is almost indispensable, although flow beans have been installed at the well head and have operated satisfactorily without heaters. Wells having a very high rock pressure are generally equipped with two flow beans. The functions of the drips and heaters are obvious. The heater should be of the water--jacketed type so that the flame will not be in direct contact with the line.

Some thought is being given at the present time to the use of fuel oil instead of water in jacketed heaters. By the use of fuel oil temperatures in excess of 212° may be applied to the gas. Also the oil will not evaporate as readily as water.

Regulators are used almost entirely in controlling the pressure on all portions of a pipe line system, through and including the low-pressure system of the town.

Classification of Regulators

Regulators are classified mainly into three groups, namely, high, intermediate and low-pressure regulators. This classification, however, is misleading as what is low pressure to a gas transportation man is high pressure to a distribution man. To the pipe line man any pressure under 50 pounds or so is low pressure, while to a distribution man this would be an extremely high pressure. Therefore, when ordering a regulator both the inlet and outlet pressures should be stipulated.

For the purpose of this paper let us consider all regulators which reduce pressures of several hundred pounds down to 50 or 75 pounds as high-pressure regulators, those which reduce pressures around 50 pounds down to 10 or 25 pounds as intermediate pressure regulators and those which reduce pressures to a few ounces as low-pressure regulators. In other words, regulators which are known to pipe line men as low-pressure regulators will be called intermediate pressure regulators.

It is often desirable to reduce the pressure upon branch lines of a transportation system. For this purpose and for the purpose of making the first reduction in pressure at a town border reducing station high-pressure regulators are used.

If the regulator is to function properly care should be taken in its installation. The site should be chosen carefully and the recommendations of the manufacturer should be followed when setting the regulator and putting it in service. The regulator should be set level on a good foundation and should be well blocked. The pipe line should not be relied upon to hold the high-pressure regulator in place. When making an installation of importance it is well to have at hand a blueprint showing the location of the regulator in relation to the line heater, drip and fittings. The size of the regulator should be specified, as should also the dimensions of the entire installation.

Load Information Important

It is highly desirable to have reliable load information when deciding upon regulator sizes. Only too often does improper regulation result from too large a regulator. It is difficult enough to obtain good regulation from a regulator of the proper size during periods of low flow. It is sometimes advisable to put in a double regulator setting consisting of different sized regulators, a 2-inch and 4-inch or some similar ratio. During the winter months when the lines are delivering the maximum amount of gas the large regulator should be in service and during periods of low flow the smaller.

It is considered good practice to build double regulator settings at any points where disastrous results would occur if one regulator freezes shut or otherwise stops the flow of gas. The method of operation is to leave one regulator in service and set the other to feed at some slightly lower pressure. If the first regulator sticks or freezes shut the second will automatically go in service as the discharge pressure drops. Pop valves should be installed on the discharge line to relieve the high pressure if the regulator drops open or otherwise fails to control the pressure.

A line heater should be placed just ahead of any high-pressure regulator. Freezing of regulators will be treated at length later on in this paper.

At points where it is impossible to set the regulator at any great distance from an orifice meter it might be well to install straightening veins in the orifice meter run. The effect on measurements due to swirling of the gas can be tested as follows: Tap the meter run ahead of the disc at four points located 90° from each other on a plane perpendicular to the axis of the pipe. By means of a high-pressure U-tube or differential gauge determine if there is any difference in pressure between any of these taps. If a difference in pressure does exist it would indicate that there is a turbulent flow.

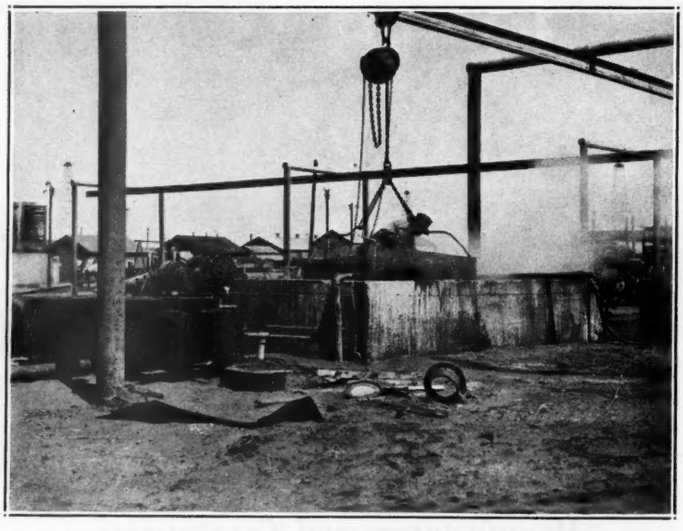
Town Border and Plant Regulators

One of the many designs for a town border or main line reducing station consists of a high-pressure regulator followed by the orifice meter setting on the discharge of which is the intermediate pressure regulator. A by-pass should be built around any single regulator setting. It should have a gate valve at each end and a flange in the middle, in which should be installed a blank plate.

If the load is of any size double regulator and orifice meter settings are installed. Also, where the delivery runs

(Continued on Page 174)

RECLAIMING OLD VALVES AND FITTINGS



In reclaiming old valves and fittings in all fields it is usually found that they are dirty and greasy and need a hot bath in some form of caustic solution to cut this coating.

At the Shell Petroleum Corp., Wink, Tex., warehouse they have erected a steel lined concrete vat as a container for the caustic liquor and heat it with live steam from a nearby boiler plant.

The parts to be cleaned are placed in a steel tray, the bottom of this tray being punched with a lot of holes for drainage, and the sides provided with two yokes that serve as handles for the chains that lead to the hoist carried on the overhead trolley system that extends over the vat and into the yard.

After a tray full of parts has been allowed to remain in the hot bath for the desired length of time it is lifted by means of the hoist and the parts washed with hot water and steam.

This high velocity stream knocks off a large amount of the grease and dirt and it falls into the vat, which is later drained and cleaned.

The final cleaning of the fittings is completed by wire brushing each part carefully and then painting or greasing them before they go to storage.

With The Shaffer Cellar Control Gate A Shut-Off Can Be Made When The Well Is Flowing

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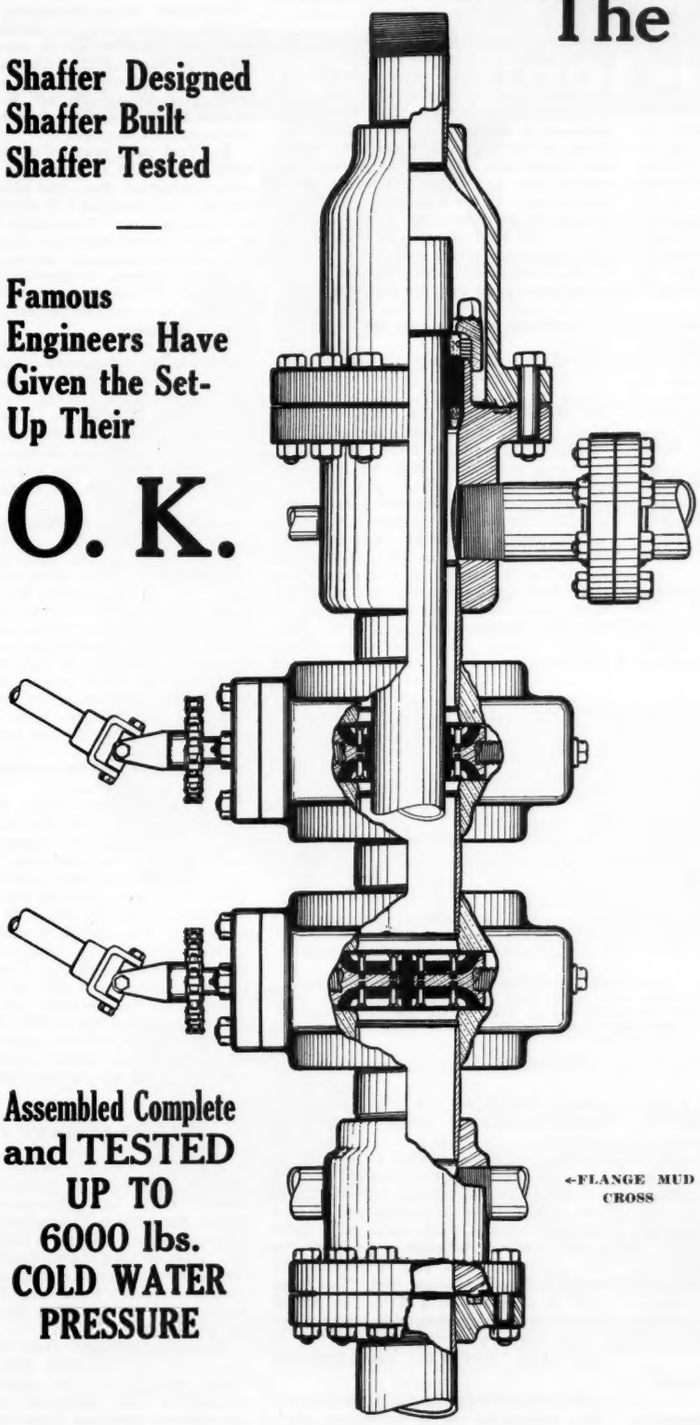
Famous Engineers Have Given the Set-Up Their

O. K.



←FLANGE MUD CROSS

Assembled Complete and TESTED UP TO 6000 lbs. COLD WATER PRESSURE

Hook-ups similar to this have been installed in most of the cellars at Kettleman Hills and other high-pressure fields. The entire assembly is put together at our plant, tested to the engineer's requirements, and shipped as a unit when desired.

The cut shows a pair of Shaffer Cellar Gates —one equipped with drill-pipe rams, and the other for a complete shut-off. The design is so compact that two of these gates can be installed in the cellar in approximately the same space occupied by the conventional type of control valve. Working parts are removable without removing cellar fittings. Rams can be furnished to fit around any size drill-pipe, tubing or casing.

With this set-up shut-offs can be made even if the well is flowing without having to hunt for or design special equipment. If the well is open it can be closed in by shutting the gate using complete shut-off rams or by using the cap to Warren Head equipped with a Christmas-tree. If the well has drill pipe or tubing in place it can be shut in by closing the gate around the tubing. Also a packing assembly can be used in the Warren Head under the collar and the well then closed in by picking up Christmas-tree and setting in place on the Warren Head.

The packing assembly is useful for emergency closing and pressures up to 1000 pounds BUT the Gate Rams are tested to 6000 Pounds and are holding at least 2500 pounds in actual use. With a 4-inch Mud Cross below the gates pressure can be released while the gates are closed if necessary. These mud lines are also useful to maintain circulation or pump in mud to kill the well. By using outlets with a 4-inch flow bean the gas pressure can be relieved as desired or back pressure can be kept on the well while circulating under pressure.

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FOREIGN—Oil Well Supply Co.

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Company.....

9-12

Of Interest to Sales Departments

Government Explains Work in Measuring Antiknock Values

By Donald B. Brooks
Bureau of Standards*

For the past two years the Bureau of Standards has been co-operating with seven other laboratories, representing the automotive and petroleum industries, in an endeavor to develop a standard apparatus, procedure and scale for the evaluation of detonation characteristics of fuels.

The need for a single standard of measurement has become increasingly apparent, more especially in the last two years. An ever larger number of laboratories are engaged in detonation work, routine or research in character. For this day of standardization, there is an amazing diversity in the methods and technique at present employed in detonation rating.[1]

Recognizing this fact, the Co-operative Fuel Research Steering Committee in February, 1928, created the Detonation Subcommittee, under chairmanship of Dr. T. A. Boyd of the General Motors Research Laboratories. This committee first undertook the design and construction of tentative standard engine.[2]

Especial attention was given to making the engine both durable and quiet. Interchangeable cylinders enable it to be operated either as a fixed compression L-head engine or as a variable compression engine with overhead valves. Steam cooling was used in an attempt to secure uniform and automatic regulation of cylinder and head temperatures. Pending design of a carburetor especially for this engine, the type of carburetor regularly supplied with another type of detonation test engine was adapted for use with this engine, it being so modified as to require practically the same adjustment for maximum intensity of detonation at all degrees of throttle opening. Spark advance is read by means of a neon tube, which is continuously in the high-tension circuit.

While the first group of engines was being built, a series of six fuels was prepared, these being intended to be representative of the types of fuels likely to be encountered in detonation testing. These fuels included a straightrun from Pennsylvanian base; the same with tetraethyl lead added and with benzol added, the amounts of the knock suppressors added not being known to the co-operating laboratories; an eastern aviation gasoline; a California aviation gasoline; and a Gulf Coast cracked gasoline.

Test Procedures

At the same time, a series of test producers was drawn up, intended to be representative of the types of methods at present employed in detonation testing.[3] These procedures include the methods of (a) throttle opening, judging the amount of opening by either the manifold depression or the power developed; (b) advancing the spark; (c) fuel matching, that is, adding sufficient knock suppressor to a badly knocking reference fuel to make it equal the test fuel; and (d) increasing the compression ratio, using the variable compression engine. Different intensities of detonation were employed with different methods of judging the intensity. The first audible or incipient detonation was estimated by ear; a more intense detonation was used with the listening post in which the detonation is made to match a mechanically produced knock; the highest intensity of detonation was used when employing the bouncing pin apparatus.

This program of tests was designed primarily to show how well a group of laboratories would agree in rating the same set of fuels if they used identical equipment and followed the same instructions. It was also intended to indicate

(Continued on Page 150)

*Paper read before Petroleum Technologists of the National Petroleum Association at the Bureau of Standards, Washington, D. C.

[1] "Methods of Measuring the Antiknock Value of Fuels," by H. K. Cummings, Jour. of the Society of Automotive Engineers, May, 1927, page 599.
Also "Results of Two Recent Detonation Surveys," by H. K. Cummings, S.A.E. Journal, April, 1928, page 448.

[2] S.A.E. Journal, February, 1929, page 212.
Also Bulletin American Petroleum Institute, January 2, 1930, Section 3, page 32.

[3] S.A.E. Journal, July, 1929, page 80.

BUREAU OF STANDARDS TESTS OUT ONE SHOT LUBRICATION SYSTEM

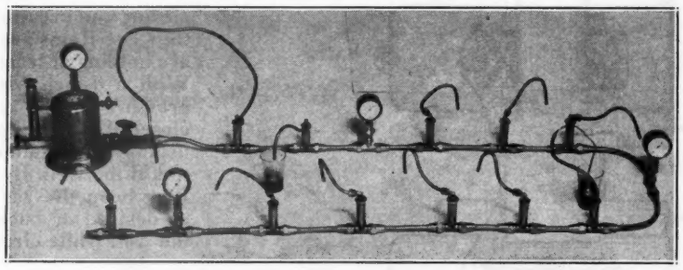
WASHINGTON, D. C., June 30.—The principal of "one shot lubrication," which if generally adopted will eliminate grease racks and greatly increase the need for a new low cold test, heavy lubricant has been brought one step nearer by the recent favorable results found at the Bureau of Standards. A simple device was developed by Lieut. R. M. Cutts, Jr., of the Marine corps. The accompanying picture shows a number of these "automatic lubricators" in series and the purpose of the test was to ascertain whether an equal amount of oil goes to all parts as was claimed for the new device.

Each lubricator consists of a brass tee with screw connections. The two straight connections form part of the continuous supply line and the third thread holds the lubricator cylinder. This cylinder is about three-fourths inch in diameter on the outside and the wall of the cylinder is about one-eighth inch thick. Inside the cylinder is a loose steel ball, a ball bearing serving the purpose nicely. This ball is approximately one-thirty-second inch less in diameter than the inside diameter of the cylinder so the natural position of the ball is in the lower part of the cylinder, resting on the tee.

The upper end of the cylinder is fitted with a cap, through the center of which is a hole ground to act as a cut-off valve when the ball is forced upward against it. A connection leading from this cap serves the supply line going to the part to be oiled.

In operation, the oil is stored in a convenient reservoir and when the various parts of the car are to be lubricated, pressure is brought on the reservoir by hand or mechanically from the engine, and the oil will tend to flow through the supply line and through each of these lubricators. If the bearing or the spring shackle to be lubricated is not clogged, the oil will tend to rush up through the cylinder past the ball and enter the part to be lubricated. After the oil in the upper part of the cylinder has been forced out the ball rises with the flow of the oil and seats itself against the top of the cylinder.

This stops the flow of oil to that part and this is duplicated in every instance where the lubricator is. If the shackle bolt or other part of the car to be lubricated is clogged the ball remains in the bottom of the cylinder until the pressure is raised sufficiently high to force the lubricant through. Thus, each little device acts independently and serves only a given volume of oil to each part. This amount may be varied by inserting washers in the base of the cylinder to raise the ball or the size of the cylinder varied. One shot lubricating systems have already been adopted on several makes of cars but this new system is said to include several advantages over past practices.



Automatic lubricators being given a preliminary test at the Bureau of Standards. Each lubricator was equipped with a different outlet tube, some being short, some long and others having a small diameter. These variations had no effect in the lubricator supplying the same amount of oil cups placed under each tube when pressure was applied on the line.

STANDARD FORM FOR CODE

A standard form for filing complaints of alleged code violations has been prepared by the North Carolina Code of Ethics Committee. It is in triplicate, one copy being held by the complainant and the others filed with the committee. The committee secretary forwards a copy to the reported offender, who is expected to make a personal visit to the complainant with a view to eliminating further misunderstandings. The secretary is notified when an understanding is reached and the committee's file then is closed. Complaints not satisfactorily adjusted are brought before the monthly meeting.

The form explains that complaints of Group 1 rulings may be brought against any oil company operating in North Carolina, but that the committee will receive complaints only from those who have signed the code. Space is provided for the presentation of full details of the complaint, with names and "the same type of substantiating data you would require if the situation were reversed."

NOT ALL BOTTLES CONDEMNED

WASHINGTON, D. C., June 30.—All glass bottles for use in dispensing lubricating oil for automobiles were not condemned at the recent meeting in Washington of the National Conference on Weights and Measures, according to a statement by the conference, which says: "The type of bottle to which objection was taken is a tall, small-diameter bottle, in which the pouring spout is usually integral with the bottle, which is not provided with venting means to facilitate drainage, and which is not suitably marketed."

RAILROAD MOTOR CARS OPERATED BY ALCOHOL

Successful use of alcohol as a fuel in railway motor cars is claimed by the Brazilian Railway which recently conducted an experiment on the line between Rio and Sao Paulo, according to a report from Vice Consul Rudolf E. Cahn in Rio de Janeiro, made public by the Department of Commerce.

The fuel used consists of 43° alcohol with an addition of 5 per cent of ethylic ether, extracted from the alcohol itself, and one one-thousandth of methylene blue as a denaturant. The railway motor car in which it was used was manufactured by a German company. It has a capacity of 62 passengers, is provided with two motors of 100 horsepower and 1,200 revolutions, and is capable of making 84 kilometers per hour.

The experiment was made over a stretch of 500 kilometers. The outward trip was made in 11 hours and 44 minutes running time, and the return trip in 9 hours and 51 minutes. The consumption of gasoline for these motor cars was reported by the manufacturers as one liter per kilometer. The actual consumption of alcohol was 1.1 liters per kilometer.

A continued use of alcohol in this way, according to Brazilian opinion, would prove a benefit to the sugar industry as alcohol can be made from the domestic sugar cane while gasoline has to be imported. The Brazilian sugar industry has been suffering losses during the past two years, due to overproduction and the difficulty of competing in foreign markets. The last harvest is calculated to have been 30 per cent below the previous one because many farmers have abandoned their crops in view of low prices.

GAS REPLACES GASOLINE

LOS ANGELES, Calif., June 28.—Ranch owners in the Kettleman Hills area of California are finding that natural gas from the producing wells is a much cheaper fuel than gasoline or distillate for water pumping units.

A case is cited in which 80 gallons of a gasoline and distillate mixture were required daily for a 40-horsepower engine, furnishing power for a water pump. By an expenditure of $50 the engine was changed so that natural gas could be used. Approximately 7,500 cubic feet of gas are required daily to operate the unit. This cost $1.55, which compares with $9.75 daily for the gasoline and distillate mixture.

SHELL BY-PRODUCT PLANT

The Shell Chemical Co., which was recently organized as subsidiary of the Shell Oil Co. of California, has purchased 600 acres in Contra Costa County, California, as a site for a nitrogen fixation plant to cost approximately $5,000,000. The new plant is the result of exhaustive research work carried on by the development department of the Shell company.

Nitrogen, obtained from the atmosphere, will be combined with hydrogen under pressure in the presence of a catalyst to form ammonia. The hydrogen will be obtained from natural gas. Ammonia and its oxidation product, nitric acid, will be combined with other materials to form fertilizer bases to supply California agriculture as well as export demand.

SIGNAL MOVES OFFICES

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Pipe contraction and expansion are cared for without installing special swing or expansion joints or bends.

Lines are laid faster and at least cost with Victaulic Couplings.

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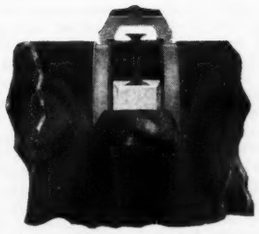

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WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w ..... Shut down 5,580 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w.... Shut down 100 ft.
J. M. Henry et al's No. 1 Abraham, SE cor. NW Sec. 4-5-8w ..... Rig.

GRANT COUNTY

Cowden et al's No. 2 Vollmer, CEL NE SW Sec. 22-25-4w. Shut down 5,640 ft.

GARVIN COUNTY

McMinn et al's No. 1 Carson, NE NW, Sec. 5-3-4w..... Rig.
Nelson et al's No. 1 Strickland, NE SW. Sec. 10-4-3w.... Shut down 2,720 ft.

GREER COUNTY

I. T. I. O. et al's No. 1 fee, C SW NE Sec. 17-6-24w ..... Drlg. 2,290 ft.

HARMON COUNTY

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor. Sec. 17-4-24w ..... Drlg. 2,065 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w.. Shut down 625 ft.

HARPER COUNTY

Empire's No. 1 Bruce, C NE SW Sec. 12-25-20w ..... Fishing 5,515 ft.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w ..... Drlg. 8,583 ft.

HASKELL COUNTY

Mid-Western's No. 1 Polster, C NE SE Sec. 33-10-22 ..... Drlg. 2,985 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e ..... Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE SW Sec. 10-9-18e.... Shut down 2,387 ft.
Sanbolse Gas' No. 1 Unknown, SW NW SE Sec. 32-9-21e.. Shut down 2,100 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 ..... Shut down 1,106 ft.

Canady et al's No. 1 Kanard, NW SW Sec. 29-9-12 ..... 1,000,000 ft. gas 2,284 ft.; drlg 3,725 ft.
Irwin et al's No. 1 Jones, SE NW Sec. 30-5-10 ..... Fishing 3,725 ft.

KAY COUNTY

Alco Royalty Co.'s No. 1 Wolf, SE SW SE Sec. 34-26-2w.. Drlg. 2,394 ft.
Waggoner Pet. Co.'s No. 1 Hinkle, C SW NW NW Sec. 2-26-3 ..... O.W.D.; drlg. 3,793 ft.
Blankenship Petroleum Co.'s No. 1 Hansen, SW NW SW Sec. 17-27-2 ..... Drlg. 2,580 ft.

KINGFISHER COUNTY

Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w ..... Shut down 6,015 ft.

KIOWA COUNTY

W. C. Adams' No. 1 Fisher, NE SW Sec. 34-7-17w ..... Total depth 1,087 ft.; abandoned.
Merrick Oil Co.'s No. 1 Kelly, NW cor. SE Sec. 20-7-17w. Shut down 1,525 ft.

LEFLORE COUNTY

Red Bank Oil Co.'s No. 1 fee, SE SW NW Sec. 23-9-24... 15,000,000 ft. gas; drlg 5,498 ft.

LATTIMER COUNTY

Limestone Oil & Gas Co.'s No. 1 Murray, NE cor. Sec. 25-5-18 ..... Shut down 1,450 ft.
Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW Sec. 23-5-18e ..... Shut down 3,250 ft.

LINCOLN COUNTY

Turman Oil Co.'s No. 1 Knox, NE SW Sec. 28-17-2 ..... Rig.
Atlantic Oil Prod. Co.'s No. 1 Parker, SE NW Sec. 5-14-6 ..... Rig on ground.
Magnolia Pet. Co.'s No. 1 Winship, NE SW Sec. 2-13-4... Drlg. 2,950 ft.
Tom Slick Oil Co.'s No. 1 Hammer, SE NW NW Sec. 35-16-2 ..... Drlg. 5,240-50 ft. water; total depth 5,270 ft.; shut down.

LOGAN COUNTY

Slick & Ramsey's No. 1 Jones, SE NW Sec. 24-17-2w .... Location.
Prairie and Slick's No. 1 Morgan, NW NE Sec. 33-16-1w ..... Drlg. 4,850 ft.
Eason Oil Co.'s No. 1 Young, C SW NE SW Sec. 34-17-4w. Fishing 1,150 ft.

McINTOSH COUNTY

T. C. Young's No. 1 Derrison, Sec. 3-12-15 ..... Fishing 2,325 ft.
Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shot 240 qts. 5,446-5,559 ft.; shot went off up hole; fishing.

MURRAY COUNTY

Chieftain Royalty Corp.'s No. 1 Hendrix, SW SE NW Sec. 27-2-2 ..... Drlg. 1,900 ft.

MUSKOGEE COUNTY

Hansen et al's No. 1 Johe, NW SW NE Sec. 12-15-18 .... Drlg. 400 ft.
H. E. Williams' No. 1 Robbins, NW SW NW, Sec. 13-15-18 ..... Spudding.
Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19.... Shut down 1,011 ft.

NOBLE COUNTY

Weaver & Craigin's No. 1 Frederick, C SW NE Sec. 4-24-1w ..... Fishing csg. 1,950 ft.
Gypsy Oil Co.'s No. 1 Bergstrom, SE NE Sec. 28-22-1w.. Drlg. 5,270 ft.

OKFUSKEE COUNTY

Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 ..... Shut down 2,795 ft.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10.. Shut down 3,661 ft.

OKLAHOMA COUNTY

Cromwell-Franklin's No. 1 Lincoln Park, SW cor., Sec. 12-12-3w ..... Rig on ground.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW, Sec. 17-11-3w ..... Drlg. 2,000 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Messer, SW cor. Sec. 32-14-3w ..... Drlg. 4,040 ft.
Prairie and Slick's No. 1 Dill, SE NW Sec. 17-13-3w.... Drlg. 6,492 ft.
Warr et al's No. 1 Castle, SW NW Sec. 20-11-3w ..... Drlg. 6,045 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE SW SE Sec. 17-12-4w ..... Drlg. 6,530 ft.
Magnolia and Ramsey's No. 1 Johnson, C NE SW Sec. 35-13-3w ..... Drlg. 6,508 ft.
Ryan Consolidated's No. 1 Lawton, NE NW Sec. 3-11-2w.. Drlg. 6,610 ft.
Tom Slick Oil Co.'s No. 1 Martin, C NW NW Sec. 13-13-1w ..... T. D. 6,971 ft.; water; plugging back 6,871 ft.; testing at 6,600 ft.

OSAGE COUNTY

Western American Oil Co.'s No. 1 NW SE Sec. 28-23-6.. Shut down 1,200 ft.

PAWNEE COUNTY

L. E. Wentz' No. 1 G. Lilly, SE SW NE, Sec. 26-22-3 .... Drlg. 660 ft.
Flynn & Morgan's No. 1 Jones, SW NE Sec. 22-20-5 ..... Shut down 700 ft.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5 .... Rig.

PITTSBURG COUNTY

Empire O. & R. Co.'s No. 1 Williams, C NE SE Sec. 33-7-16e ..... Fishing 3,975 ft.

POTTAWATOMIE COUNTY

The Texas Company's No. 1 Knight, SW SE Sec. 3-8-3 .. Location.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 Williams, C SW Sec. 23-12-24w ... Shut down 2,245 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w ..... Shut down 2,905 ft.

SEMINOLE COUNTY

Pure Oil Co.'s No. 1 Shaffer Ashby, SE NE Sec. 22-7-5 .. Drlg. 2,895 ft.
T. Adkins et al's No. 1 McGilbray, SE NE Sec. 4-8-8 .... Drlg. 3,465 ft.
Magnolia and Twin State Oil Co.'s No. 1 Harns, SW NE NE Sec. 8-5-6 ..... Drlg. 3,449 ft.
Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 35-5-5 ..... Location.

WASHITA COUNTY

Southern Inv. Co.'s No. 1 Musie, NW cor. Sec. 10-9-20w... Shut down 280 ft.

WOODS COUNTY

Peerless O. & G. Co.'s No. 1 Crowell, C NW NE Sec. 23-28-16w ..... Drlg. 6,150 ft.
Gypsy-Prairie et al's No. 1 Thompson, SE cor. SW Sec. 10-25-15w ..... Shut down 6,104 ft.
Sinclair Oil & Gas Co.'s No. 1 Showwalter, C SW SW Sec. 33-27-16w ..... Shut down 6,790 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 2-22-17w ..... Shut down 1,387 ft.
Prairie Oil & Gas et al's No. 1 Wilbur, NE cor. NW Sec. 22-23-17w ..... Drlg. 7,358 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE Sec. 15-21-19w ..... Shut down 1,910 ft.

OKLAHOMA PANHANDLE

CIMARRON COUNTY

Magnolia's No. 1 School Land, C SW NE Sec. 27-5-5 ..... Drlg. 2,735 ft.

TEXAS COUNTY

Palo Alto Oil Co.'s No. 1 Graves, NE SW SW Sec. 23-2-18e ..... Spudded; shut down.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Bryant-Croxton's No. 1 Mason, NW SE NW Sec. 4-1s-14.. Shut down 1,850 ft.
Brookshire's No. 1 Guinn, NW cor. Sec. 18-3s-10 ..... Shut down 100 ft.

BRYAN COUNTY

Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... Shut down 525 ft.
Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-16s-7e... Shut down 385 ft.
Marshall's No. 2 fee, C SW SE NW Sec. 26-5s-7 ..... Shut down; 6-in. csg. 265 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Shut down 2,590 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW Sec. 15-6s-19e ..... Shut down 1,346 ft.

COMANCHE COUNTY

Pelwin Oil Co.'s No. 1 Tafepirdy, C NW NE NE Sec. 5-1s-9w ..... Shut down 785 ft.

LOVE COUNTY

Hobbs et al's No. 1 Roberts, NE cor. SW Sec. 20-6s-3w.... Drlg. 3,005 ft.
Gilcrease Oil's No. 1 Burkhart, NE NW Sec. 13-6s-1..... Rig.

MARSHALL COUNTY

Pace et al's No. 1 Hicks, SW NW 8-6s-7 ..... Drlg. 300 ft.
Walker et al's No. 1 Parks, NW NE NW Sec. 5-5s-5 .... Drlg. 250 ft.
McCrory et al's No. 1 Adams, NE SW SE Sec. 31-7s-6 ... Rig.
Wheeler et al's No. 1 Taylor, NE NW NW Sec. 8-7s-6e... Abandoned 1,005 ft.
Akers et al's No. 1 Spicer, SW SE SE Sec. 33-5s-7e ..... Rig.

McCURTAIN COUNTY

Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 ..... Shut down 2,287 ft.

STEPHENS COUNTY

R. Southard's No. 1 McKinney, NE cor. Sec. 25-1-8n ..... Shut down 1,060 ft.
Wirt Franklin Petroleum Corp.'s No. 1 McPhail, NW SE Sec. 1-2s-7w ..... Total depth 4,529 ft.; to test.

CENTRAL WEST FIELDS

(Continued from Page 60)

tion 21, from 3,547-55 feet. Same company has a good gas well in No. 1 on the Loverige Meek farm, Section 36, Washington Township, in the lime formation from 3,639-47 feet. Gas Production Co. of Ohio drilled in a nice gas well in No. 2 on the C. H. Smetts, Lot 35, from 3,575-81 feet.

In Stark County, Onaburg Township, East Ohio Gas Co. has a dry hole at a total depth of 4,777 feet, but some gas was found in the Newberg formation but not in commercial quantities.

In Fairfield County, Pleasants Township, the City Natural Gas Works found a small gas volume in No. 4 on the Henry Hartman farm, Section 23, from 1,900-10 feet.

In Guernsey County, Adams Township, George McLaughlin and others drilled a dry hole in a second test on the James R. McNurney, Section 10. Ohio Fuel Gas Co.'s No. 3-1,414 Loren Stocker, Section 9, produced 20 bbls. from 3,552-61 feet.

In Belmont County, Central Gas Co. found a dry hole in a second test on the D. L. Hagan, Section 1, Somerset Township, from a depth of 1,510 feet.

In Morgan County, Penn Township, Ohio Fuel Gas Co. has an average gas well in No. 4-5,109 A. W. Embree farm, Section 16, from the lower Cow Run sand from 707-15 feet.

In Sutton Township, Meigs County, the Big Four Oil & Gas Co.'s No. 3 W. J. Krider, Section 24, is reported showing for a 5-bbl. pumper.

INDIANA

Indications point to a revival of test work in parts of Sullivan County, Indiana, not explored during the rush of a few years ago in that county. Ellis & Thomas, operators of Owensboro, Ky., have staked out two wildcat locations, both in Curry Township, one being on the E. Thompson farm, Section 5, and the other on the Alva Martz, Section 32. This firm will also start development work in a short time in Vigo County around and south of Terre Haute.

Charles W. Scott and others' test, 660 feet from the south line and 200 feet from the west line of the C. L. Davis farm, SW, Section 14, Turman Township, Tullivan County, pumped 6 bbls. the first 24 hours from a depth of 801 feet.

The Ohio Oil Co. drilled in a 25-bbl. initial producer in a second test on the Cash Piety farm, Section 32, Prairie Creek Township, Vigo County.

In the old Trenton Rock area of northeastern Indiana, George S. Lacknett and others' second well on the Baker heirs farm, Section 3, Jefferson Township, Adams County, pumped an initial of 15 bbls.

In Huntington County, Salamonia Township, Max Siegler Brothers pulled out 18 wells on the Calvin Perdue farm, Section 29. This was a very productive farm for many years. Same parties abandoned one well on the Laura A. Slater, and also three on the Frank Malott, all in Section 29.

In Delaware County, the Athens Gas Corp. abandoned old Nos. 1, 4, 5, 6, 7 and 8 on the L. H. Hollaway farm, in the Muncie Field.

ILLINOIS

Some activity still prevails in some parts of Illinois, although work is not being rushed. In Prairie Township, Crawford County, J. W. Lindley, trustee, drilled a test in the northwest corner of the S. D. Akeman No. 1 farm, in the SE, Section 35, getting a 25-bbl. initial producer at 1,020 feet, and on the S. D. Akeman No. 2 farm, Section 36, same township, pumped 20 bbls. The O. R. Oil & Gas Co. made the best strike in No. 6 on the William Akeman farm, Section 2, same township, which showed an initial production of 50 bbls. Porterville Oil Co. is drilling on the Otto Fought farm, Section 36, and Watson and others are drilling No. 1 J. F. Johnson, Section 12, and No. 3 Martin Newlin, Section 13, Prairie Township.

In Lawrence County, Dennison Township, the Becca Oil Co.'s No. 2 well, 600 feet from the north line and 800 feet from the west line of the Walter Buchanan farm, SW, Section 1, pumped 80 bbls. initial from the Ridgley sand from 1,254-57 feet. Blosser and others found a dry hole in No. 3 in the northwest corner of the R. J. Gillespie farm, SW, Section 1, same township, at 1,400 feet. In Bridgeport Township, the International and Emerald Co. abandoned Nos. 5 and 6 C. H. Fyffe, Section 31.

In the Allendale Field, Wabash Township, Wabash County, the Robinson Oil Co.'s second test, 200 feet from the north line and 1,200 feet from the west line of the Hattie E. Robinson farm, had an initial production of 45 bbls. from 1,472-96 feet. The Ohio Oil Co.'s No. 4, in the southeast corner of the W. J. Shick farm, SE, Section 5, pumped 12 bbls. from 1,568-89 feet.

In the Mississippi River on Arsenal Island, Mitchart and others drilled a dry hole on the East St. Louis Boat Club property from 543-75 feet.

In the Dupo Field, Sugar Loaf Township, St. Clair County, the H. & M. Operating Co. found a 20-bbl. initial pumper in No. 4 on the Pauline Eckert farm, SW, Section 34, from 686-730 feet.

GAS METERING STATION DESCRIBED IN DETAIL

(Continued from Page 98)

gauges on the same flanges as the ones now in use, making two sets of recording instruments to each flange, and they also have the right to examine orifice plates and make tests jointly.

Station's Capacity

"Maximum capacity of the station at 250 pounds is 250,000,000 feet of gas per day allowing a margin of 65,000,000 feet between this maximum and the 185,000,000 feet anticipated to be handled immediately. The meter house is of corrugated sheet iron and measures 96'x20'. It is built directly over the selling companies' orifice flanges and has a removable floor, no part of the structure touching any of the piping, and houses 42 meters, the purchasing companies having 24 feet of half-inch pipe in each gauge line. Each meter has a range of 100-inch differential and 500 pounds pressure and each meter run is equipped with four thermometer wells, two on the inlet side on the high side of the straightening vane and two on the outlet side of a few feet from the outlet gate. Two of these wells, one on each end of the meter run, accommodate a Tagliabue fully-compensated 0-150° mercury-filled temperature recorder. The remaining two steel wells are kept filled with mercury that a check, with an industrial thermometer, may be taken any time during the day. The flow is corrected daily for temperature.

"The primary meters have 40 feet of straight pipe between the inlet gate and the orifice flange and the secondary or check meters, and 40 feet between the first and second orifice flange, and 20 feet between the second meter and the outlet gate. The setting is divided into 21 meter runs, 4 feet apart, three 12-inch, ten 8-inch and eight 6-inch, each run equipped with a double acting straightening vane, that is, two vanes, each 18 inches long and 18 inches apart, coupled by a piece of half-inch strap iron, making the unit 4 feet 6 inches in length. When mated they are identically in the same identical plane and are divided into six sections each of which is again divided, making 12 sections in all. But if it is desired half the vane can be twisted slightly in the strap iron so as to give a double effect. Each vane is placed 30 feet from the first orifice.

"All orifice plates used are the heavy Westcott type, maximum orifice being kept within 50 per cent of the flange size, the flanges equipped with half-inch stop-cock for drainage of any liquid that may accumulate. Each line is also equipped with a 1-inch bleeder valve installed in the bottom of the pipe near the outlet gate. Each tube was micrometered for internal diameter making it possible to determine the coefficient from the actual internal diameter.

"The entire installation is 30 inches to the top of the meter runs above ground and has 100 feet of straightrun of pipe, including meter flanges, between inlet and outlet gates, and is supported on four concrete piers approximately 33 feet apart with all runs strapped to the piers. Gas is transported to the station through five lines, one 20-inch, one 14-inch and three 6-inch, and is passed through vertical liquid scrubbers before going to the regulators. In most cases the feeder lines approach the installation on a 22.5-degree riser, but in other cases where regulators are set within 50 feet of the inlet gate the runs approach this gate on the same level.

On the Outlet Side

"On the outlet side the gas is passed into three 20-inch lines to the compressor station, and the inlet header at the compressor plant is so arranged as to permit three different suction pressures; therefore the meters are tied into each line making it possible to pass delivery into any one or all three suctions. A serious problem in regard to pulsation arose as the meter station is only 1,800 feet from the suction side of the compressors. However, Hodgson's scheme of using a pressure drop of 4 or 5 pounds by means of a partially closed gate or gates between stations has been successfully applied.

"Specific gravity tests are taken semimonthly by means of an Ac-Me gravity balance. Three concrete blocks, one at each end and one in the center of the house, were built to accommodate the gravity apparatus and to prevent vibration and resetting. A quarter-inch line connecting all meter runs, when necessary, is run to these blocks enabling a gravity test on all lines without moving the apparatus. The gauges are tested semimonthly, or oftener if necessary, with a 100-inch water column having a tube one-half inch inside diameter and a water tank 32 inches in diameter.

"Seventy-six gates were used in the installation. All meter runs are painted aluminum and gates, flanges and fittings black, and the houses buff with a green roof. The entire installation is of welded construction except for the screw orifice flanges. The gauges are set with the same spacing and every feature throughout is symmetrical. A load dispatcher's office is in the building with a dispatcher on duty every hour of the 24. To date the measurements have been very successful, as the meters are checking within one-half of 1 per cent and to date the entire setting has needed no more attention than the average small setting in the field."

CANADIAN FIELDS

(Continued from Page 80)

these tests for some time took light crude production from the upper horizons but may be deepened to the lime. It is unofficially reported that following the success resulting from the shooting of a number of deep tests, all the small producing wells of the Imperial string will be shot to develop production.

Imperial Oil, Ltd., has increased the price for crude naphtha in the Turner Valley Field by 25 cents a barrel, bringing clear naphtha to $3.69 and discolored naphtha to $3.45.

Central Turner Valley

In the Central Turner Valley area, Dome Oil's No. 2, LSD 16, Section 31-19-2w5, has derrick up and is reported moving in equipment. In Section 12-20-3w5, New McDougall-Segur Oil Co.'s No. 3, LSD 14, has new derrick up and is installing machinery to resume at 5,105 feet.

In North Turner Valley, Anaconda Oil Co.'s No. 1, LSD 16, Section 22-20-3w5, is at 3,575 feet, with around 3,000,000 feet of wet gas, and is strengthening derrick foundations before going deeper. The hole is underreamed for 10-inch to 3,480 feet with casing run to 3,450 feet. United Oils' No. 4, Section 24-20-3w5, is rigging up cable tools to clean out and restore production from the Dalhousie sand at 5,420 feet, and may deepen to the lime.

Drilling in the Foothills

On the Highwood structure, south of Turner Valley, Western Alberta Oil Co.'s No. 1, LSD 11, Section 7-17-2w5, is bailing small quantities of 34.3 gravity crude from the limestone at 3,878 feet.

On the Moose Dome, Moose Oils' No. 1, LSD 16, Section 29-22-6w4, has shut off gas with 8-inch casing and is resuming at 2,595 feet.

On the Pincher Creek structure, Weymarn Petroleums' No. 2, LSD 5, Section 7-6-1w5, is in the Dalhousie sands at 1,878 feet with wet gas flow increased to 1,000,000 feet.

Red Coulee Field

In the international Red Coulee Field, Mid-Continent Oil & Refining Co.'s No. 2 Farbo, Section 2-27-4w, on the Montana end, drilled into production at 2,468 feet and is reported good for 100 bbls. It is apparently a flowing well. Gas production, estimated 4,000,000 feet, was struck in the overlying Vanalta sand. It may be drilled deeper. This is the ninth producing well in the Red Coulee Field. Rice & Radigan's No. 1, Section 1-37-4w, which got a gas flow at 2,490 feet, estimated 5,000,000 feet, got oil at 2,555 feet and is reported good for 300 to 350 bbls. The well blew oil over the derrick and flowed for some time before it was got under control. Askalta Oils' No. 1 has been located on the Montana end of the structure.

On the Alberta end, Alberta Pacific's No. 1, LSD 2, Section 3-1-16w4, is reported to show increasing production. Sampson Oil & Development Co.'s No. 1 has been spotted in LSD 2, Section 7-1-16w4. Southern Alberta Exploration's No. 1, LSD 8, Section 3-1-16w4, is reported drilling into production after cementing at 2,415 feet, with heavy gas pressure and some oil in the hole. Devonshire Oils' No. 1, LSD 3-4, Section 10-1-16w4, is at 1,400 feet and making repairs. Capitol Oil & Gas Co.'s No. 1, LSD 3, Section 21-1-16w4, is drilling close to production at 2,290 feet. Caledonia Oils' No. 1, LSD 10, Section 6-1-16w4, has let drilling contract to Elliott & Atkins to spud in before July 10. Location is slightly north of the Vanalta producers.

New Imperial Project

Officials of Imperial Oil, Ltd., have announced that arrangements have been concluded with Benton Oils, Ltd., for the development of 2,780 acres on the Lethbridge Pete structure. This acreage was leased by Lethbridge Petroleum & Refineries, Ltd., and subleased to Benton Oils, Ltd. Imperial Oil, Ltd. is paying $27,800 with a guarantee of one-eighth royalty on all production. Drilling operations will be commenced this season. The acreage has been extensively prospected and core drilled by Lethbridge Petroleum & Refineries, Ltd. Of the $10 per acre, $1 was payable when the Benton Oils shareholders voted on the offer, $4 on acceptance, and $5 on the striking of the first production.

Ontario

In Kent County, Ontario, American Engineering Co.'s No. 2, John Dawson farm, Lot 147, South Talbot Road in Raleigh Township, has added another gasser to the new D'Clute Field. After encountering a gas flow, estimated 3,000,000 feet, at 1,555 feet depth the test was deepened to 1,562 feet, somewhat increasing production. It was shot at this depth on June 24 with 80 quarts and after blowing several hours showed 5,500,000 feet or more, with 600 pounds rock pressure. It has been shut in. Production will be delivered to the Union Natural Gas Co. Union Natural Gas Co. is spudding in an offset test about 110 feet north of American Engineer's No. 2, on Lot 147, North Talbot Road.

In Norfolk County, Acme Gas & Oil Co. and associated companies are reported completing a joint test for gas near Maybee's Corners.

In the D'Clute Field, Kent County, Ontario, Union Natural Gas Co.'s No. 10, on the Sykes farm, W half, Lot 16, Concession 14, Raleigh Township, finished a dry hole at 1,875 feet after drilling through the lime.

SOUTHWEST TEXAS

(Continued from Page 48)

Gulf's No. 2 Malear, in the J. R. Robinson Survey; total depth 2,620 feet; completed; swabbed 600 bbls. per day.

The Texas Company's No. 4 Posey, 150 feet out of east corner of west 40-acre tract; total depth 2,619 feet; completed; swabbed 35 bbls. per hour.

The Texas Company's No. 5 Posey, 150 feet out of north corner of east 40-acre tract; total depth 2,632 feet; completed; swabbed 150 bbls. per day.

Dobrowolski Pool—Bexar County

Penn-Tex Oil Co.'s No. 2 L. Sandemer, 2,220 feet east of west line, 1,120 feet north of south line, in the M. Menchaca Survey; total depth 704 feet; completed; pumped 12 bbls. per day.

Cole Pool—Webb County

French Oil Corp.'s No. 2-A R. Benavides, 550 feet north line, 150 feet west line, Survey 659; total depth 2,345 feet; completed, estimated 150 bbls.

Jennings Pool—Zapata County

O. & A. Co.'s No. 2 Gracia, 150 feet northeast line, 450 feet northwest line, Share 3, Fansler Partition, Comitas grant; total depth 1,239 feet; completed, 12,000,000 feet of gas.

Nordan & Morris' No. 1-B M. Trevino, 1,233 feet southwest line, 150 feet northwest line, Block 15, Survey 65; total depth 1,257 feet; completed, estimated 100 bbls.

O. W. Killam's No. 19-B Cuellar, 1,700 feet south line, 3,330 feet east line, Survey 277; total depth 1,592 feet; completed, 100 bbls.

Pettus Field—Bee County

Glasscock Brothers' No. 1 Pettus Townsite, Block 41 (center of block), of townsite; total depth 3,814 feet; complete, 20,000,000 feet dry gas.

ABANDONED TESTS

Darst Creek—Guadalupe County

Penn-Tex Oil Co.'s No. 1 S. M. Roamel, 150 feet from south line, 1,400 feet west of east line of 150-acre tract, in the J. R. Robinson Survey; total depth 2,606 feet.

Buchanan Pool—Caldwell County

Buchanan-Danciger's No. 2 Medlin, 300 feet northeast of No. 1, in the C. M. Cannon Survey; total depth 2,460 feet.

Roma Pool—Starr County

The Texas Company's No. 1-B V. C. de Guerra, 150 feet south line, 150 feet west line of north 1,173 acres, Share 92, Porcion 68 of Partition Porcion 67-68-69-70-71-72, Jurisdiction of Mier; total depth 3,785 feet.

Cole Pool—Duval County

F. S. Bain-Miller I. Shaw's No. 1 S. Benavides, 1,950 feet west line, 180 feet north line, Survey 173; total depth 2,817 feet.

NEW LOCATIONS

Darst Creek—Guadalupe County

Gulf Production Co.'s No. 5 Posey, 150 feet from south and west lines of tract, in the J. R. Robinson Survey; location.

Gulf Production Co.'s No. 4 Posey, 488 feet from southwest line, 150 feet from southeast line of 71-acre tract, in the J. R. Robinson Survey; location.

Magnolia Petroleum Co.'s No. 3 L. V. Echols, 2,400 feet to southwest line, 1,100 feet to southeast line of farm, in the James Hodges Survey; location.

Bruner Pool—Caldwell County

Gulf Production Co.'s No. 4 T. Briscoe, 150 feet north of center of south line of 100-acre tract, in the Rains-McCarley Survey; derrick.

Cole Pool—Duval County

John J. O'Hern's No. 1 Benavides, 510 feet southwest line, 150 feet northwest line, O'Hern & Seacord Subdivision, Mesquite grant, Block 8, Survey 174; derrick.

Cole Pool—Webb County

French Oil Corp.'s No. 1-B R. Benavides, 150 feet south line, 150 feet east line, Survey 661; derrick.

Jennings Pool—Zapata County

Grimm & Yakey's No. 1 C. Bustamente, 150 feet northeast line, 1,300 feet northwest line, Share 33, Fansler Partition, Comitas grant; derrick.

South Texas Production Co.'s No. 1 F. G. Martinez, 2,878 feet north line, 2,498 feet west line, Survey 6; rigging up.

Pettus Field—Bee County

Humble Oil & Refining Co.'s No. 5 McKinney, 150 feet south of south line of Pettus Townsite, direct offset to Houston Oil Co.'s No. 1 Beasley; rigging up.

Union Production Co.'s No. 15 Ray, 150 feet to south line, 150 feet to east line of southeast corner of Pettus Townsite, offset to Houston Oil Co.'s No. 1 Beasley; derrick.

Union Production Co.'s No. 16 Ray, 150 feet east of Pettus Townsite, offset to Glasscock's No. 1 in Block 41; derrick.

North Mineral Area—Bee County

Grayburg Oil Co.'s No. 2 Kimball, 150 feet each way from southwest corner of 80-acre tract or 2,700 feet to east line, 2,100 feet to south line of survey, in the Stephen Winship Survey; derrick.

Grayburg Oil Co.'s No. 1 S. D. Copeland, 150 feet from southeast corner of north half of William Sanford Survey; derrick.

Agua Dulce—Nueces County

Saxet Oil Co.'s No. 1 Donegan, 700 feet from north and east lines of east 240 acres of Donegan tract, 4 miles west from Corpus; total depth 3,306 feet; cored sand at 3,286-3,306 feet; reamed down 20 feet and rotating.

Saxet Gas Co.'s No. 6 John Dunn, 600 feet south of No. 5 Dunn, 4 miles west from Corpus; total depth 1,285 feet; drilling in sand and shale.

DRILLING ACTIVITY

Dobrowolski Pool—Bexar County

Eckert & Son's No. 6 Sandemer, 400

feet west of No. 5, Survey 52; total depth 400 feet; drilling.

Bruner Pool—Caldwell County

Eastland Oil Co.'s No. 1 C. F. Dye, 150 feet from south and east lines, in the J. Hinds Survey; location.

Gulf Production Co.'s No. 3 T. Briscoe, 450 feet to south line, 1,800 feet to west line of lease, in the J. D. Rains Survey; total depth 500 feet; drilling in shale.

Buchanan Pool—Caldwell County

Ed Lange and others' No. 1 Geoffery, 745 feet south and north line, 150 feet east and west line of lease or 1,776 feet east and west line, 3,496 feet south and north line of survey, in the C. M. Cannon Survey; total depth 2,460 feet; drilling in Edwards lime.

Darst Creek—Guadalupe County

Empire Gas & Fuel Co.'s No. 3 Dowdy, 792 feet to north line, 150 feet to east line of tract, in the J. C. Darst Survey; derrick.

Empire Gas & Fuel Co.'s No. 5 Dowdy, 792 feet from north line, 150 feet from east line of tract, in the J. C. Darst Survey; derrick.

Gulf Production Co.'s No. 2 Malear, 450 feet from southwest line, 150 feet from northwest line of 72-acre tract, in the J. R. Robinson Survey; derrick.

Magnolia Petroleum Co.'s No. 2 A. Knodle, 450 feet from southwest line, 150 feet from northwest line of tract, 300 feet northeast of No. 1, in the J. R. Robinson Survey; rigging up.

Trinity Drillers' No. 1 H. G. Goldman, 150 feet from southwest corner of tract, in the J. B. Alexander Survey; rigging up.

Adams Gas Field—Medina County

Witherspoon Oil Co.'s No. 1 Adams, 300 feet north line, 3,200 feet east line of P. E. Durst Survey, 12 miles southeast from Hondo; total depth 1,360 feet; drilling in shale.

Cole Pool—Duval County

Cole Petroleum Co.'s No. 69 R. Benavides, 660 feet northeast line, 693 feet northwest line, Cole Subdivision, Mariano Arispe grant, Block 4, Survey 20; total depth 2,856 feet; coring.

Henne-Winch's No. 1 R. Benavides, 175 feet southwest line, 205 feet southeast line, Cole Subdivision, Mariano Arispe grant, Block 4, Survey 22; total depth 1,700 feet; drilling.

John J. O'Hern's No. 1 Benavides, 510 feet southwest line, 150 feet northwest line, O'Hern-Seacord Subdivision, Block 8, Survey 174; derrick.

Pettus Field—Bee County

Barnsdall Oil Co.'s No. 1 Roberts, 300 feet each way out of northwest corner of 225-acre lease, in the George A. Kerr Survey; total depth 2,800 feet; drilling in sandy shale.

Batex Oil Co.'s No. 1 Mrs. H. J. Burns, 360 feet from north line, 300 feet from east line of north 100 acres of 300-acre farm, in the John Pace Survey; total depth 310 feet; drilling in sandy clay.

Cosden Oil Co.'s No. 2 McKinney, 860 feet from south line, 300 feet from east line of tract, in the south John Pace Survey; total depth 1,600 feet; drilling in sandy shale.

Cosden Oil Co.'s No. 3 McKinney, 360 feet from south line, 800 feet from east line of tract, in the south John Pace Survey; rigging up.

Glasscock Brothers' No. 1 Pettus Townsite, Block 41 (center of block) of townsite; total depth 3,814 feet; set casing; reported completed in error.

Humble Oil & Refining Co.'s No. 4 McKinney, 1,100 feet from northwest corner, 250 feet from northeast line of the L. C. Randolph Survey; total depth 875 feet; drilling.

S. R. C. Co.'s (Tom Slick and others) No. 1 Townsite, center of Block 37 of Pettus Townsite; location.

Union Production Co.'s No. 10 George Ray, 150 feet north and 150 feet east of the southwest corner of Block 240, G. Neil Survey; location.

Union Production Co.'s No. 11 George Ray, 3,200 feet southwest of north corner along northwest line, 300 feet southeast at right angles from northwest line, in the R. G. Millican Survey; total depth 3,815 feet; blowing 30,000,000 feet gas, running wild.

Union Production Co.'s No. 13 George Ray, 900 feet due south of Union Production Co.'s No. 1 Ray, gas well, in the George Habbermacher Survey; derrick.

Union Production Co.'s No. 14 George Ray, 600 feet southeast of No. 5 Ray, 250 feet northeast at right angles from south line of survey, in the T. Hanson Survey; total depth 2,100 feet; drilling in sandy shale.

H. H. Weinert's No. 1 Townsite, center of Block 38, Pettus Townsite; location.

Lasater Field—Brooks County

Houston Oil Co.'s No. 1 Holbein-Wormser, Palo Blanco de Maguellas Survey; total depth 6,003 feet; testing sand at 3,807-14 feet.

Pettus Area—Goliad County

Doctor Hewitt and others' No. 1 Ray, 200 feet each way out of southwest corner of the B.&B. Survey; total depth 4,050 feet; cored oil sand 3,830-38 feet; set casing.

Cartwright Pool—Live Oak County

Houston Oil Co.'s No. 22 Cartwright, 500 feet east of No. 18, in the J. M. Colchado Survey; total depth 1,015 feet; drilling in shale.

Houston Oil Co.'s No. 1 R. Boothe, 3,000 feet from west line, 300 feet south line, in the M. B. Kilvin Survey; total depth 4,855 feet; drilling in sand and shale.

Agua Dulce Pool—Nueces County

Agua Dulce Oil & Gas Co.'s No. 1 J. A. Daudermann, 450 feet south and north line, 450 feet west and east line of Block 13, SE, Section 22, Benton Pasture Subdivision; total depth 2,360 feet; reaming down to deepen to 4,500 feet; temporarily abandoned April 23, 1930.

Houston Oil Co. of Texas' No. 1 M. E. Brooks, 330 feet from north and east lines of fractional Section 29, Benton Pasture Subdivision, Los Sauces grant; total depth 4,180 feet; shut down; installing heavier rig.

Kohler Pool—Duval County

Humble Oil & Refining Co.'s No. 46 Kohler, 990 feet north line, 1,155 feet east line, Survey 144; total depth 1,750 feet; drilling.

Simms Oil Co.'s No. 9 Dinn, 660 feet east line, 660 feet south line, NW SE, Survey 143; rigged up, standing.

Humble Oil & Refining Co.'s No. 41 Kohler, 2,970 feet south line, 330 feet east line, Survey 165; location.

Schoolfield-O'Byrne—Duval County

C. E. Long's (Shell) No. 1 Bishop Duval Land Co., 2,800 feet north line, 160 feet west line, Survey 59; rigging up.

Magnolia Petroleum Co.'s No. 1 Lundell, 450 feet north line, 150 feet east line, SE, Survey 60; total depth 4,100 feet; drilling in sticky shale.

Albercas Pool—Webb County

O. W. Killam's No. 2 Bruni, 575 feet north line, 871 feet east line, Brown Subdivision, Block 33, Albercas grant; total depth 2,066 feet; drilling.

Carolina-Texas—Webb County

E. D. Claggett and Sam Evans' No. 1 Webster, 150 feet south line, 990 feet west line, Survey 684; total depth 3,074 feet; sand 3,056-74 feet.

W. R. Shankle's No. 2 Webster, 1,170 feet west line, 150 feet south line, Survey 684; rigging up.

Cole Pool—Webb County

O. W. Killam's No. 19 Bruni, Adams Subdivision, Mariano Arispe grant, Block 1, Survey 8; derrick.

O. W. Killam's No. 5 Bruni, 270 feet northwest line, 203 feet southwest line, Adams Subdivision, Mariano Arispe grant, Block 26, Survey 8; total depth 2,556 feet; drilling.

Magnolia Petroleum Co.'s No. 2 A. Benavides, 150 feet north line, 150 feet east line, Survey 660; total depth 2,353 feet; building standard derrick.

Magnolia Petroleum Co.'s No. 4 C. Benavides, 150 feet south line, 150 feet west line, Survey 662; spudded in.

S. R. C. Co.'s (Trinity Drillers, Inc.) No. 1 Montemayor, 150 feet north line, 150 feet west line, Block 8, Survey 64; total depth 1,285 feet; set 6⅝-inch casing at 1,285 feet; sand 1,285 feet.

S. R. C. Co.'s (Trinity Drillers, Inc.) No. 2 Trevino, 150 feet south line, 150 feet west line, Block 8, Survey 66; total depth 1,200 feet; drilling.

Charco Redondo—Zapata County

C. R. Moore and J. M. Moore's No. 1 Adela G. De Flores, 330 feet northwest line, 330 feet northeast line, E. M. Doty Oil & Gas Subdivision, Block 99, Charco Redondo grant; total depth 150 feet; spudded in; set 10-inch casing at 150 feet.

C. R. Moore and J. M. Moore's No. 2 Adela G. de Flores, 150 feet northeast line, 150 feet southeast line, E. M. Doty Oil & Gas Subdivision, Block 151, Charco Redondo grant; total depth 50 feet; standing.

Mid-West Public Utilities' No. 1 Garcia, 450 feet southwest line, 450 feet southeast line of M. P. de Garza tract, Block 33, Pedernal grant; total depth 1,381 feet; standing.

Jennings Pool—Zapata County

Arnold & Ahler's No. 1 M. Garza, 450 feet northeast line, 450 feet northwest line, Block 1, Subdivision Zorro ranch, Comitas grant; total depth 1,357 feet; cap 1,353-55 feet; sand 1,355-57 feet; testing.

Alamo Drilling & Leasing Co.'s No. 2 Trevino, 500 feet east line, 150 feet north line, Block 1, Survey 66; total depth 1,228 feet; set 6⅝-inch casing at 1,223 feet; sand 1,223-28 feet.

Alamo Drilling & Leasing Co.'s No. 1 Trevino, 450 feet west line, 150 feet south line, Block 1, Survey 66; total depth 600 feet; drilling.

Alamo Drilling & Leasing Co.'s (Claggett) No. 2 Trevino, 150 feet east line, 150 feet south line, Block 1, Survey 66; derrick.

Alamo Drilling & Leasing Co.'s No. 3 Trevino, 750 feet east line, 150 feet north line, Block 1, Survey 66; location.

R. F. Blankenship's No. 2 Garza, 425 feet west line, 425 feet north line, Block 2, Survey 413; total depth 1,650 feet; preparing to drill deeper from 1,650 feet.

A. L. Edgington's No. 4 I. G. Trevino, 150 feet south line, 150 feet west line, Block 26, Survey 412; rigging up.

O. W. Killam's (Killam-Duggan) No. 17-B Cuellar, 150 feet south line, 150 feet southwest line, Survey 277; location.

O. W. Killam's No. 18-C Cuellar, 2,804 feet southeast of northwest corner, 150 feet southwest line, Survey 278; total depth 1,980 feet; drilling.

O. W. Killam's No. 23 Cuellar, 150 feet 80-acre tract or 4,765 feet northwest line of Cerrito Blanco grant; total depth 2,321 feet; sand 2,250-51 feet; tested gas and salt water; drilling.

O. W. Killam's No. 24 Cuellar, 2,926 feet northwest line, 150 feet northeast line, Cerrito Blanco grant; derrick.

H. Muckelroy' Jr.'s No. 3 Trevino, 460 feet south line, 300 feet east line, Block 25, Survey 412; total depth 1,285 feet; sand 1,282-85 feet; standing 1,200 feet oil.

Morris & Allen-Nordan and Morris' No. 1 J. G. Gutierrez, 150 feet northeast line, 150 feet northwest line, Share 4, Fansler Partition, Comitas grant; total depth 1,233 feet; set 6⅝-inch casing at 1,229 feet; sand 1,229-33 feet.

Nordan & Morris-Allen & Morris' No. 1 E. Gutierrez, 4,410 feet southeast line, 450 feet northeast line, Share 4, Fansler Partition, Comitas grant; derrick.

Nordan & Morris' No. 2-A I. G. Trevino, 150 feet southwest line, Block 6, Survey 65; total depth 1,237 feet; sand at 1,237 feet.

South Texas Production Co.'s No. 9 Measles and others, 3,830 feet southeast line, 660 feet northeast line, Cerrito Blanco grant; total depth 1,756 feet; drilling.

W. R. Shankle's No. 2 M. Trevino, 150 feet northeast line, 150 feet southeast line, Block 14, Survey 65; total depth 1,243 feet; set 6⅝-inch casing at 1,240 feet; sand 1,240-43 feet.

W. R. Shankle's No. 2 E. Gutierrez, 600 feet northeast line, 2,989 feet northwest line, Share 4, Fansler Partition, Comitas grant; location.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 50)

Humble & Valley's No. 9 Payne ..... Set screen 3,446 ft.
Humble & Valley's No. 2 Sherrod ..... Derrick.
Humble & Valley's No. 7 Urban ..... Shut down 1,165 ft.
Humble & Valley's No. 6 Woodley ..... Derrick.
Humble & Valley's No. 7 Woodley ..... Derrick.
Humble & Valley's No. 8 Woodley ..... Derrick.
Humble & Valley's No. 9 Woodley ..... Derrick.

DEWALT—FORT BEND COUNTY

Humble Oil & Ref. Co.'s No. 10 Sugarland ..... Drlg. sand 3,533 ft.
Humble Oil & Ref. Co.'s No. 15 Brazos ..... Drlg. shale 1,365 ft.

HUMBLE—HARRIS COUNTY

Benedum & Trees' No. 1 Foley, south ..... Drlg. shale 8,104 ft.
Dunbar & Deering's No. 1 Bennett, northwest ..... No report.
Houtex Oil Co.'s No. 1 Hirsch, northwest ..... Drlg.
Lee & Wilson's No. 3 Wheeler and Pickens, northeast.... Location.
Rio Bravo Oil Co.'s No. 1 fee, west ..... Drlg. sandy shale 3,697 ft.
Rio Bravo Oil Co.'s No. 2 fee, west ..... Cmtd. csg. 3,978 ft.
Rio Bravo Oil Co.'s No. 1 H.&W.T., west ..... Derrick.
Sun Oil Co.'s No. 7 Bender, west ..... No report.
Sun Oil Co.'s No. 8 Bender, west ..... No report.
Sun Oil Co.'s No. 48 River, north ..... Drlg. shale 4,380 ft.
Sun Oil Co.'s No. 49 River, north ..... Location.
Trap Shooter Riley's No. 1 Long John Jones ..... Location.
The Texas Company's No. 23 Wheeler and Pickens, northeast ..... Rig.

BLUE RIDGE—FORT BEND COUNTY

Joe Collins' No. 1 R. C. Duff ..... Drlg. sandy shale showing oil 3,955 ft.
Gulf Production Co.'s No. 18 Luscher, south ..... Rig.
Navarro Oil Co.'s No. 9-A Robinson, west ..... Sidetracking hard lime 3,596 ft.; total depth salt 5,232 ft.
Sinclair Oil & Gas Co.'s No. 1 Simms-Blakely ..... Total depth 6,189 ft.; heaving shale; set 470 ft. screen 5,554-6,024 ft.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Production Co.'s No. 32 Taylor ..... Testing oil sand 4,658 ft.
Navarro Oil Co. and Texas Exploration Co.'s No. 19 Dooley, east ..... Drlg. sandy shale 4,557 ft.
Rio Bravo Oil Co.'s No. 12-A Settegast (workover) ..... Testing 5,395 ft.
Rio Bravo Oil Co.'s No. 19-A Settegast ..... Rig.

LIBERTY—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 12 O'Brien ..... Set 56 ft. 4½-in. screen 3,512-63 ft.; comp. flowing 675 bbls. oil.
The Texas Company's No. 7 Green, northwest ..... Drlg. sand and shale 3,324 ft.

HULL—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 18 Barngrover (workover).. Comp. flowing 135 bbls. oil 3,496 ft.
Empire Gas & Fuel Co.'s No. 31 Barngrover (workover).. Comp. flowing 130 bbls. oil 3,887 ft.
The Texas Company's No. 8 Hannah-Vacuum ..... Milling 5,117 ft.
The Texas Company's No. 2 Barrow ..... Drlg. sticky shale 3,700 ft.

BIG CREEK—FORT BEND COUNTY

Gulf Production Co.'s No. 58 Davis ..... Heaving shale 4,629 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 11 Mayes ..... Total depth 2,702 ft.; sidetracking at 1,095 ft.
Pure Oil Co.'s No. 11-A Mayes ..... Location.
Pure Oil Co.'s No. 5 Lost Lake ..... Derrick.

NASH—BRAZORIA COUNTY

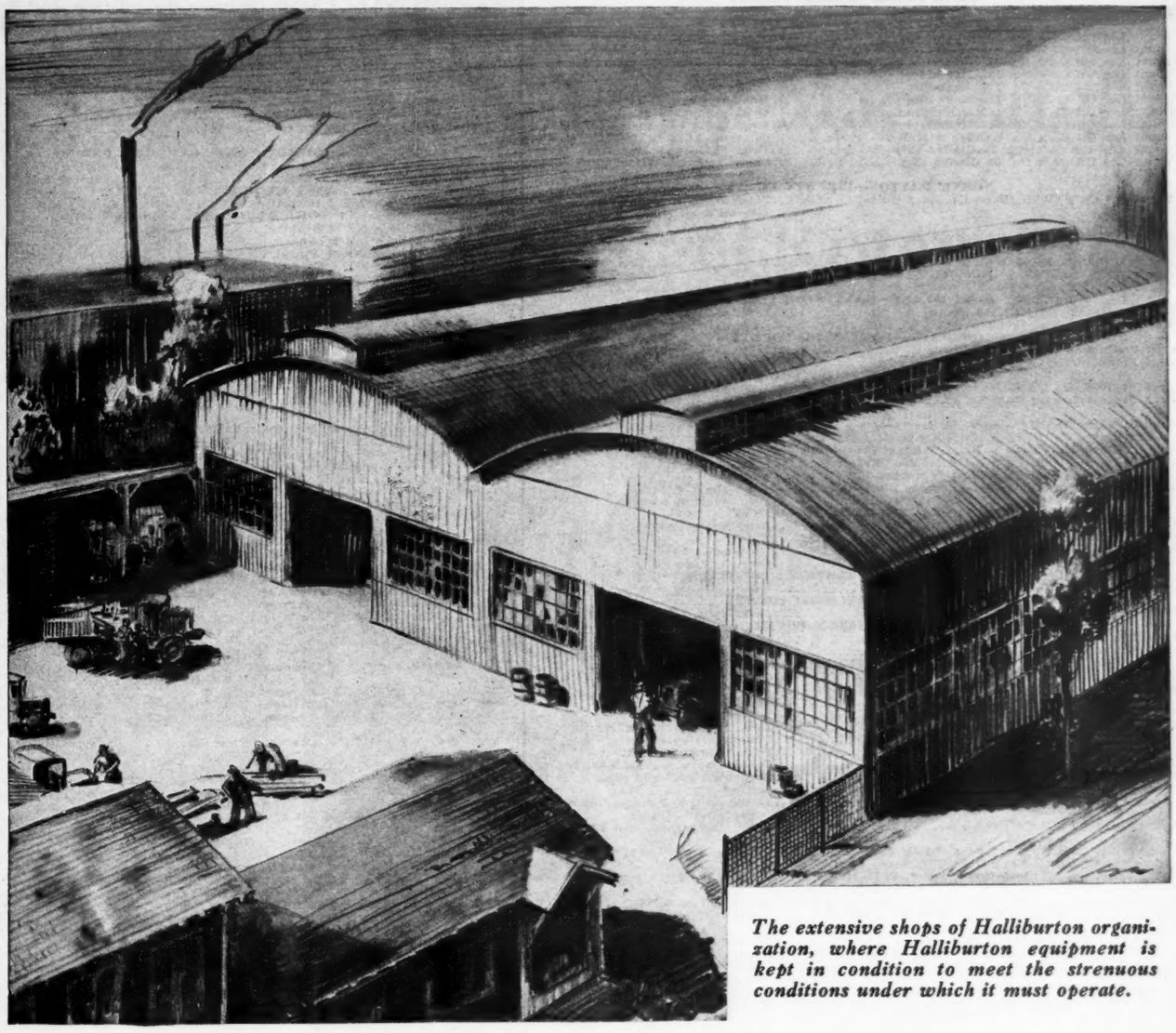
Rycade Oil Corp.'s No. 15 Wisdom (workover) ..... Drlg. shale 3,863-65 ft.
Rycade Oil Corp.'s No. 27 Wisdom ..... Derrick.

SOUR LAKE—HARDIN COUNTY

The Texas Company's No. 306 Texas Co. fee ..... Rig.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 85-A Cotton ..... Rig.



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GOOSE CREEK—HARRIS COUNTY

Humble Oil & Ref. Co.'s No. 78 Simms-Smith ..... Derrick.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 23 fee (workover) ..... Washing 4,107 ft.
Yount Lee Oil Co.'s No. 8 McFaddin (workover) ..... Rig up to deepen, 2,541 ft.
Yount Lee Oil Co.'s No. 47 McFaddin (workover) ..... Comp. flowing 950 bbls. 2,958 ft.
Yount Lee Oil Co.'s No. 132 McFaddin ..... Heaving shale 5,974 ft.
Yount Lee Oil Co.'s No. 135 McFaddin ..... Comp. flowing 1,050 bbls. 3,824 ft.
Yount Lee Oil Co.'s No. 136 McFaddin ..... Heaving shale 3,824 ft.
Yount Lee Oil Co.'s No. 137 McFaddin ..... Drlg. sand 2,930 ft.
Yount Lee Oil Co.'s No. 138 McFaddin ..... Drlg. shale and lime 3,808 ft.
Yount Lee Oil Co.'s No. 1 Greer & Hall ..... Oil sand 3,692 ft.; cmtd. csg.
Yount Lee Oil Co.'s No. 33 Gladys City ..... Drlg. shale and lime 3,698 ft.
Yount Lee Oil Co.'s No. 53 Gladys City ..... Comp. pumping fresh water 2,733 ft.

NORTH DAYTON—LIBERTY COUNTY

Victor Oil Co.'s (V. H. Borsodi) No. 2 Gulf ..... Total depth 4,768 ft.; sidetracked; to oil sand 4,736 ft.; cmtd. 4½-in. csg. 4,722 ft.
Houtex Oil Co.'s No. 1 Simmons & Brown ..... Total depth 5,340 ft.; sidetracking 5,183 ft.
Houtex Oil Co.'s No. 2 Wilhite ..... Drlg. shale and lime 215 ft.
Harrison Oil Co.'s No. 5 Quintette ..... Location.
The Texas Company's No. 1 Paraffine fee ..... Drlg. brown shale 5,475 ft.

HIGH ISLAND—GALVESTON COUNTY

Gulf Production Co.'s No. 10 Smith ..... Drlg. sand 3,821 ft.
Marrs McLean's No. 18 Cade ..... Drlg. hard sand and lime 3,765 ft.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 23 Moore ..... Drlg. shale 900 ft.
Gulf Production Co.'s No. 24 Moore ..... Drlg. gumbo and lime 1,685 ft.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Oil Co.'s No. 5 Esperson ..... Drlg. plug 5,323 ft.
Cranfill-Reynolds Oil Co.'s No. 12 Esperson ..... Set 24 ft. screen 2,406 ft.; comp. flowing 240 bbls. oil.
Cranfill-Reynolds Oil Co.'s No. 13 Esperson ..... Sand showing oil 2,865 ft.
Cranfill-Reynolds Oil Co.'s No. 4 Davis ..... To pump 2,347 ft.
Cranfill-Reynolds Oil Co.'s No. 1 Vajdak (workover) ... Fishing 7,071 ft.
Cranfill-Reynolds Oil Co.'s No. 3 Moores Bluff ..... Drlg. gumbo 150 ft.
Cranfill-Reynolds Oil Co.'s No. 1-B Moores Bluff ..... Location.
Republic Production Co.'s No. 1 Moores Bluff ..... Drlg. shale 4,375 ft.
Yount Lee Oil Co.'s No. 3 Moores Bluff ..... Drlg. sand and shale 6,700 ft.

HANKAMER—LIBERTY COUNTY

Gulf Production Co.'s No. 7 Boyt ..... Drlg. gumbo 2,575 ft.
Gulf Production Co.'s No. 8 Boyt ..... Rig.
Gulf Production Co.'s No. 1 Lee ..... Abandoned 5,534 ft.
Gulf Production Co.'s No. 1 Ezzell ..... Derrick.

WEST COLUMBIA—BRAZORIA COUNTY

Anderson et al's No. 1 Smith & Brooks ..... Rig.

MARKHAM—MATAGORDA COUNTY

Hamil Drilling Co.'s No. 1 Meyers ..... Drlg. rock 2,256 ft.

BOLING—WHARTON COUNTY

C. S. Thomas' No. 1 Volney ..... Rig.
C. S. Thomas' No. 1 Taylor ..... Drlg. rock 537 ft.

REFUGIO—REFUGIO COUNTY

Houston Oil Co.'s No. 1 O'Brien, Block 5 ..... Cmtd. csg. 5,427 ft.
Houston Oil Co.'s No. 3 Ryals ..... Rig.
Houston Oil Co.'s No. 1 Rooke ..... Location.
Houston Oil Co.'s No. 1 Strauch, Block 20 ..... Blowing wild; sand 5,468 ft.
Houston Oil Co.'s No. 1 City, Block 59 ..... Drlg. sticky shale 1,421 ft.
Houston Oil Co.'s No. 1 O'Connor ..... Changing rigs 512 ft.
Houston Oil Co.'s No. 1 West ..... Drlg. gumbo 5,090 ft.
Houston Oil Co.'s No. 1 Rose Lambert ..... Cored lime and shale 5,861 ft.
Houston Oil Co.'s No. 2 Rose Lambert ..... Drlg. hard sand and shale 3,928 ft.
Houston Oil Co.'s No. 1-A Fannie Heard ..... Setting csg. 5,370 ft.
Houston Oil Co.'s No. 13 P. H. Rooke ..... Tested salt water; pulling screen 3,686 ft.
Houston Oil Co.'s No. 7 Fannie Heard (workover) ..... Drlg. sticky shale and lime 3,391 ft.
Houston Oil Co.'s No. 1 Johnson, Block 63 ..... Drlg. sand rock 1,157 ft.
Independent Oil Co.'s No. 1-B J. F. B. Heard (workover).. Milling 3,542 ft.
Independent Oil & Gas Co.'s No. 2-C J. F. B. Heard ..... Sand 3,630-90 ft.; cmtd. csg.
Independent Oil & Gas Co.'s No. 1 Mitchell ..... Derrick.
Independent Oil Co.'s No. 1 Mercy Academy ..... Plugged from 5,478 ft. to 5,382 ft.
Independent Oil & Gas Co.'s No. 1 M. F. Lambert ..... Total depth in sandy shale 6,375 ft.; drill stem stuck.
Edwin M. Jones' No. 3-A J. F. B. Heard ..... Oil sand 3,645-46 ft.; set 30 ft. screen; swabbing.
Edwin M. Jones' No. 4-A J. F. B. Heard ..... Cmtd. csg. 3,647 ft.
Larco Co.'s No. 5 Strauch ..... Drlg. lime and gumbo 2,189 ft.
Luling Oil & Gas Co.'s No. 1 J. W. Kay ..... Cmtd. csg. 3,758 ft.
Luling Oil & Gas Co.'s No. 1 West ..... Rig.
Mission Drilling Co.'s No. 1 Holmes Heard ..... Drlg. gumbo 3,305 ft.
Mission Drilling Co.'s No. 1 Joe Shay, Block 6 ..... Drlg. sand and shale 2,349 ft.
Mission Drilling Co.'s No. 1 O'Brien ..... Set 10 ft. screen; swabbing 5,471 ft.
Moody-Seagraves Prod. Co.'s No. 2 O'Brien ..... Set 44 ft. screen; swabbing salt water 5,471 ft.
Moody-Seagraves Prod. Co.'s No. 8 City ..... Junked and abandoned 1,131 ft.
Moody-Seagraves Prod. Co.'s No. 1-A O'Brien ..... Derrick.
Moody-Seagraves Prod. Co.'s No. 3 O'Brien ..... Derrick.
Moody-Seagraves Prod. Co.'s No. 1 Strauch, Block 64 .... Gumbo; set 12½-in. csg. 1,553 ft.
Morgan Oil Corp.'s No. 1 St. John ..... Drlg. shale and lime 6,517 ft.
Morgan Oil Corp.'s No. 1 O'Connor ..... Drlg. plug 5,471 ft.
Morgan Oil Corp.'s No. 2 O'Connor ..... Oil sand 5,383-89 ft.; cem. casing.
Morgan Oil Corp.'s No. 3 O'Connor ..... Set 12 ft. screen; spraying gasoline 1,600 ft.
Morgan Oil Corp.'s No. 4 O'Connor ..... Drlg. sandy shale 5,407 ft.
Pearson Properties, Inc.'s No. 2 Ryals ..... Drlg. shale 5,547 ft.
Pearson Properties, Inc.'s No. 1 Tobe Wood ..... Drlg. sandy lime 4,376 ft.
Ed Price's No. 1 Mission River ..... Cmtd. csg. 3,663 ft.
Saxet Oil Co.'s No. 12 Clint Heard ..... Gumbo; cmtd. 12½-in. csg. 491 ft.
Saxet Oil Co.'s No. 1 Kay ..... Gumbo; cmtd. 12½-in. csg. 414 ft.
Sun Oil Co.'s No. 5 Buckley ..... Cored oil sand 3,649-57 ft.
The Texas Company's No. 2 Ben Shelton ..... Rig.
Union Producing Co.'s No. 4 Morgan-Vance ..... Oil sand 3,695 ft.; set screen.
Union Producing Co.'s No. 5 O'Brien ..... Drlg. hard lime 4,605 ft.
Union Producing Co.'s No. 6 O'Brien ..... Derrick.
Union Producing Co.'s No. 4 Powers ..... Drlg. sand 5,513 ft.
Union Producing Co.'s No. 5 Powers ..... Location.
Union Producing Co.'s No. 2 Shelton ..... Abandoned 5,958 ft.
Union Producing Co.'s No. 4 Mitchell ..... Temporarily abandoned 5,741 ft.
Union Producing Co.'s No. 5 Mitchell ..... Rig.
Union Producing Co.'s No. 3 J. F. B. Heard ..... Drlg. plug 3,657 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 2 Moss ..... Drlg. gumbo 2,700 ft.
Union Sulphur Co.'s No. 1 Martha Moss ..... Rig.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 26 Miller ..... Oil sand 4,383 ft.; cmtd. 7-in. csg.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 28 Miller ..... Rig.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 29 Miller ..... Location.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 5 Freiberg & Wolf ..... Drlg. sand 4,267 ft.
Vacuum Oil Co. and Gulf Prod. Co.'s No. 7 Farquahar .. Drlg. gumbo 3,298 ft.
Yount Lee Oil Co.'s No. 1 Miller ..... Drlg. sand and gravel 350 ft.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 19 Watkins ..... No report.
Calcasieu Oil Co.'s No. 2 Verdine ..... No report.
Duhon Oil & Mineral Co.'s N. 1 Koonce ..... No report.
Gulf Refining Co.'s No. 1 Erwin ..... Drlg. sand and shale 2,701 ft.
The Texas Company's No. 7 State ..... Building derrick.
Yount Lee Oil Co.'s No. 1 Portia ..... Reaming to set casing 3,664 ft.
Yount Lee Oil Co.'s No. 3 R. Vincent ..... Drlg. shale 3,656 ft.
Yount Lee Oil Co.'s No. 4 Lacey ..... Set screen 3,299 ft.

JENNINGS—ACADIA PARISH

Abshire-Bolyard's No. 6 Jennings ..... Location.
The Texas Company's No. 5 Rayne heirs, King tract ... Drlg. rock 8,225 ft.
Yount Lee Oil Co.'s No. 7 Crowley ..... Drlg. 3,786 ft.

VINTON—CALCASIEU PARISH

Gulf Refining Co.'s No. 2 Gardner ..... Rigging up.
Gulf Refining Co.'s No. 3 Gardner ..... Drlg. 1,459 ft.
Vinton Petroleum Co.'s No. 3 Matilda Gray ..... Milling to deepen 2,920 ft.
Vinton Petroleum Co.'s No. 5 Matilda Gray ..... Salt water; shut down 3,500 ft.
Vinton Petroleum Co.'s No. 7 Matilda Gray ..... Rig.

BAYOU BOUILLON—ST. MARTIN PARISH

Rycade Oil Corp.'s No. 1 Woodyard Lake ..... Drlg. shale and lime 4,458 ft.
Rycade Oil Corp.'s No. 10 Bouillon fee ..... Drlg. lime rock 3,550 ft.

STARKS—CALCASIEU PARISH

Adams Oil Co.'s No. 1 Roderick ..... No report.
J. O. Davis' No. 1 Industrial ..... Standing 3,775 ft.
Gulf Refining Co.'s No. 23 Lutcher-Moore ..... Pumped 10 bbls. daily 580 ft.; drlg. deeper.

SWEET LAKE—CAMERON PARISH

Magnolia Petroleum Co.'s No. 1 Sweet Lake ..... Drlg. 705 ft.
Pure Oil Co.'s No. 9 Yount Lee ..... Coring 6,374 ft.

ANSA LA BUTTE—ST. MARTIN PARISH

Yount Lee Oil Co.'s No. 2 Herbert ..... Drlg. sand 4,256 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Refining Co.'s No. 3 Hoskins ..... Drlg. gumbo 1,695 ft.
Gulf Refining Co.'s No. 2 Lahaye ..... Comp. flowing.
Alex Rice, trustee's No. 1 Futral ..... Cem. casing to test 4,497 ft.
Alex Rice, trustee's No. 2 Futral ..... Location.
Alex Rice, trustee's No. 3 Futral ..... Location.
Pure Oil Co.'s No. 1 Perkins ..... Drlg. sand and gravel 552 ft.
The Texas Company's No. 8 Botany Bay ..... Gumbo 1,085 ft.; cmtd. 12½-in. csg.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Black Oil Co.'s No. 1 Lancashire, near Sealey ..... Fishing drill stem 4,230 ft.
O'Hara et al's No. 1 Batia, near Raccoon City ..... Shut down 4,000 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur. .... Total depth 5,511 ft.; waiting orders.
Mills Bennett Production Co.'s No. 1 Random, Allen .... Pulling screen; total depth 5,365 ft.
Mills Bennett Production Co.'s No. 1 Reese, Allen ..... Rig.
Cullen & West's No. 1 Ward, Damon Mound ..... Drlg. shale 2,521 ft.
Faust et al's No. 5 Faust ..... Drlg. sandy shale 4,159 ft.
Freeport Sulphur Co.'s No. 2,001 fee, Bryan Heights .... Spudded.
Layne et al's No. 6 Wisdom, Damon Mound ..... No report.
Rucks & Patterson's No. 1 Hunter, southwest of Hoskins.. Preparing to resume drilling 1,186 ft.
Rycade Oil Corp.'s No. 1 Rapid City, Henry Austin Sur... Drlg. shale and shell 5,409-29 ft.
Shell Petroleum Corp.'s No. 1 Blakely-Winston, Danbury ..... Shut down 1,567 ft.
Shell Petroleum Corp.'s No. 2 Blakely Winston, Danbury.. Abandoned 2,381 ft.
Shell Petroleum Corp.'s No. 3 Blakely-Winston, Danbury.. Rig.
Shell Petroleum Corp.'s No. 2 Proebste, Clemens Rock.... Cap rock 615 ft.
Steel & Strickland's No. 1 Lockridge ..... Spudded and shut down.
United Oil Syndicate's No. 1 Moores, Francis Moore Sur. ..... Drlg. gumbo and lime 1,126 ft.

CALHOUN COUNTY

The Texas Company's No. 1 Thomas, J. P. Tilley Sur..... Spudded.

CHAMBERS COUNTY

Chicago Oil Corp.'s No. 1 Lawrence ..... Shut down 3,810 ft.
Shell Petroleum Corp.'s No. 1 Herff, Moss Bluff ..... Reaming 5,568 ft.
Pure Oil Co.'s No. 1 Kirby, Charles Tilton Survey ..... Coring sand and shale 5,940 ft.; slight show of oil.
Pure Oil Co.'s No. 1 J.H.K. Ranch, Oyster Bayou ..... Drlg. sticky shale and gumbo 3,526 ft.
Superior Oil Corp.'s No. 1 Jackson ..... Drlg. gumbo 3,865 ft.
The Texas Company's No. 1 Jackson, T.&N.O. Sur., Sec. 17 ..... Drlg. sand and clay 70 ft.

COLORADO COUNTY

Gulf, Humble and Penn's No. 1 Wilson, John McCroskey Sur. ..... Drlg. sandy shale 2,735 ft.

GRIMES COUNTY

Cranfill-Reynolds Oil Co.'s No. 1 Stoneham, Navasota ... Drlg. shale 717 ft.
Deering & Noble's No. 1 Templeman, 6 miles south Navasota ..... Rig.

HARDIN COUNTY

D. O. Speights' No. 1 fee, near Batson ..... Drlg. gumbo 1,910 ft.

HARRIS COUNTY

Baldwin and associates' No. 1 Kitzman, Cypress ..... Shut down 4,247 ft.
Bert & Griffin's No. 1 Milroy, Aldine ..... Drlg. shale 1,940 ft.
Cranfill-Reynolds Oil Co.'s No. 1 Rorick, J. Ogburn Sur... Drlg. sand 4,738 ft.
Humble Oil & Ref. Co.'s No. 7 Warren, Hockley ..... Drlg. sticky shale 6,718 ft.
Humble Oil & Ref. Co.'s No. 3 Minnetex, Mykawa ..... Derrick.
Sloan Prospecting Co.'s No. 1 Davis, Cedar Bay ..... Drlg. shale 5,255 ft.
Strang Oil Co.'s No. 1 Good, Deer Park ..... Drlg. hard shale 5,770 ft.

JASPER COUNTY

Helmerich & Payne, Inc.'s No. 1 C. L. Flourney ..... Location.

JACKSON COUNTY

Jackson County Oil Syndicate's No. 8 Drushell, Edna ... Drlg. shale and lime 2,375 ft.
The Texas Company's No. 1 C. A. Mitchell, G. Ewing. Sur. ..... Drlg. shale 4,826 ft.

JEFFERSON COUNTY

Bayou Oil Co.'s No. 1 Hooks-Bordage, W. C. Dyches Sur. ..... Total depth 5,510 ft.
Deep Test Oil Co.'s No. 1 McFaddin, Chaisson Sur. ..... No report.
Gulf Production Co.'s No. 5 Burrell, Fannett ..... Total depth 5,414 ft.; tested salt water 5,159 ft.; abandoned.
Gulf Production Co.'s No. 2-A Junker, Fannett ..... Drlg. sand 3,817 ft.
The Texas Company's No. 1 Fitzhugh, Big Hill ..... Abandoned 5,863 ft.
The Texas Company's No. 3 Pipkin, Big Hill ..... Drlg. sand, shale and lime 1,408 ft.
Westbury Oil Co.'s No. 1 West, Choate Sur. ..... Shut down 3,490 ft.

LIBERTY COUNTY

Gulf Production Co.'s No. 1 McFaddin, Moss Bluff ..... Sand and shale showing oil 5,759-77 ft.; cmtd. 6⅝-in. csg. 5,750 ft.
Humble Oil & Ref. Co.'s No. 1 Sabine Tram, Devers .... Drlg. lime 4,309 ft.
Tucker et al's No. 1 Bell, Devers ..... Derrick.

MATAGORDA COUNTY

Cockburn et al's No. 1 Hawkins, Shepherds Mott ..... Drlg. heaving shale 6,097 ft.
Watts Oil Co.'s No. 1 Titus, Wheelright Sur. ..... Drlg. gumbo 2,307 ft.

MONTGOMERY COUNTY

Kelley-Kaker's No. 2 Guerges ..... Shut down 1,915 ft.

ORANGE COUNTY

Gulf Production Co.'s No. 1 W. E. Starks, Port Neches... Sandy shale showing oil 4,389 ft.; cmtd. csg.
The Texas Company's No. 2 Kuhn, Port Neches ..... Cored sand 4,016-26 ft.
The Texas Company's No. 2 Stark, Port Neches ..... Drlg. sticky shale 4,232 ft.

WALKER COUNTY

Texas State Oil Co.'s No. 2 Foils, H.&T.C. Sur., Abstract 287 ..... Drlg. gumbo 1,610 ft.

WALLER COUNTY

Humble Oil & Refining Co.'s No. 1 J. N. Taub, B.B.B.& C. Sur. ..... Drlg. shale 826 ft.
Kirby Petroleum Co.'s No. 2 Davis, San Felipe ..... Abandoned in salt 4,755-4,825 ft.
W. P. Morris' No. 1 Chapman, Donoho Sur. ..... Shut down 2,075 ft.

WASHINGTON COUNTY

W. Birdwell's No. 1 Schram, James Walker Sur. ..... Shut down 2,110 ft.
Clifton et al's No. 1 Pruiss, E. Alcorn Sur. ..... No report.
Mid-Kansas Oil & Gas Co.'s No. 1 Cuscamp, B. F. Sanders Sur. ..... Drlg. shale 2,047 ft.
Sun Oil Co.'s No. 9 Grote, Clay Creek ..... Drlg. rock 2,927 ft.
Sun Oil Co.'s No. 4 Clay, Clay Creek ..... Drlg. rock 2,508 ft.
Sun Oil Co.'s No. 5 Hunt, Clay Creek ..... Location.
Sun Oil Co.'s No. 5 Janner, Clay Creek ..... Total depth 1,426 ft.; plugged to 1,421 ft.; swabbing.

SOUTH LOUISIANA

ACADIA PARISH

Charles P. Siess' No. 1 Roller, Sec. 8-9s-1e ..... Drlg. 1,650 ft.

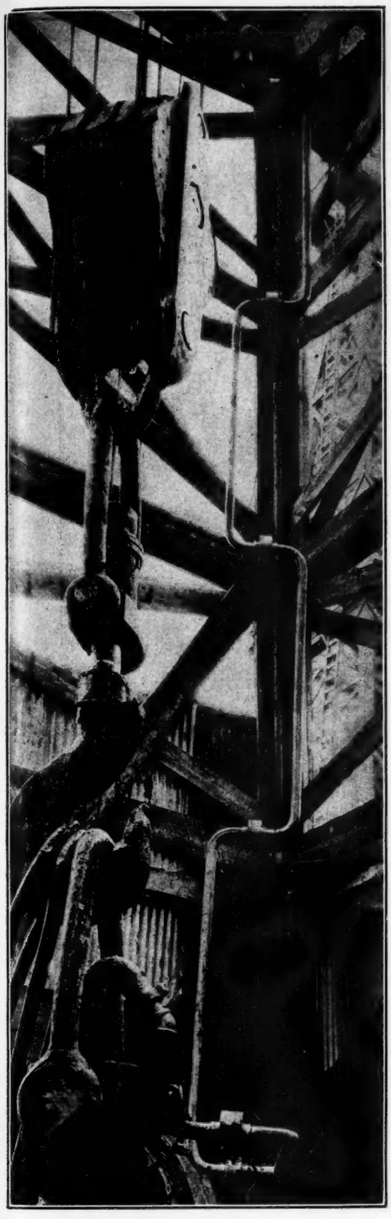
CALCASIEU PARISH

Wilfred Lahay's No. 2 James ..... Standing 3,970 ft.

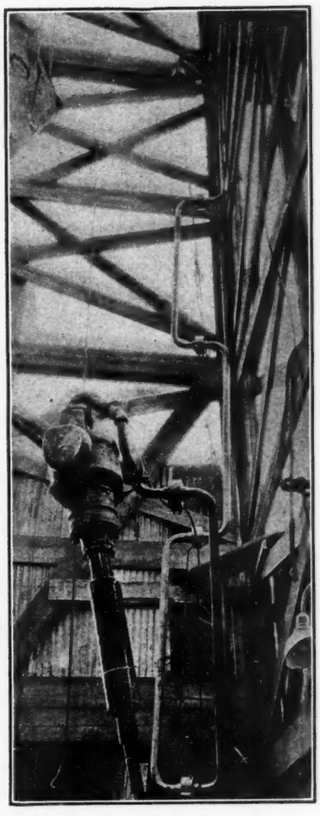
CAMERON PARISH

Shell Petroleum Corp.'s No. 15 Watkins, Black Bayou ... Location.

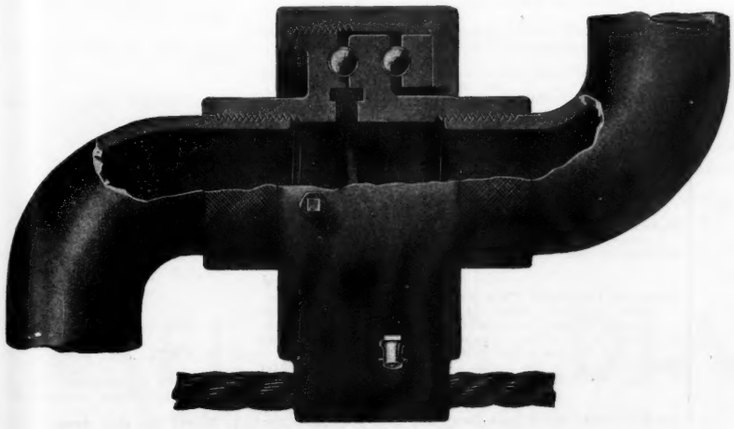
The NEW MacClatchie All-Steel Rotary Hose



On the left the MacClatchie hose is shown in the drilling position and the view to the right illustrates the position of the new all-steel hose when the kelly is in the rat-hole.



A cut-away view of one of the swivel unions of the new MacClatchie hose is shown below. Note the simplicity of design. All parts are easily replaceable. The automatic rubber packing shown works on the "cup-leather" principle.



MAXIMUM flexibility under highest pressures . . . unobstructed flow with no sharp bends . . . leak-proof . . . and the price brings it within reach of even the smallest operator! That's the new MacClatchie All-Steel Rotary Hose. It is backed by a guarantee to save you money and to out-perform any other metal hose on the market. Designed to be placed in every practical position . . . it cannot bind or become cramped. In the swivel joint below note the simplicity and sturdiness of construction. All parts are easily replaceable in a few moments. The automatic rubber packing works on the "cup-leather" principle of expansion. Every MacClatchie Hose is tested to 5000 lbs. C.W.P. before delivery. The five-section hose . . . 37½′ . . . is standard. This and other assemblies are available in either 2½″ or 3″ size. The simplicity of the design makes it possible to maintain the high quality of workmanship and materials, and yet the price remains surprisingly low. Field tests have proven its ability to stand up day-in-and-day-out, and close observation in the field has shown MacClatchie engineers that the new all-steel hose is bound to find a place in the industry similar to that held by the MacClatchie Mud Pump Valve. Further details and prices on request. MacClatchie Mfg. Co., Compton, California.

"There are more MacClatchie Mud Pump Valves sold than any other make." Quality is responsible! Stocked by all Mid-Continent Continental Supply stores.

Shell Petroleum Corp.'s No. 1 State, Black Bayou ..... Driving piling.
Vacuum Oil Co.'s No. 1 Cameron Meadows, Sec. 21-14s-13w ..... Drlg. sandy shale 3,953 ft.
The Texas Company's No. 6 State, Calcasieu Lake ..... Building derrick.

IBERIA PARISH

Lake Oil Co.'s No. 1 Ben White, Sec. 54-12s-7e ..... Drlg. 1,526 ft.
The Texas Company's No. 5 Vermillion Bay ..... Drlg. sand and boulders 1,756 ft.

IBERVILLE PARISH

Shell Petroleum Corp.'s No. 5 Wilbert, White Castle .... Derrick.
Standard Oil Co.'s No. 5 Schwing, Bayou Blue ..... Drlg. 940 ft.
Standard Oil Co.'s No. 5 Wilbert, Bayou Blue ..... Sandy shale showing oil 2,146 ft.
Standard Oil Co.'s No. 7 Wilbert ..... Derrick.
Standard Oil Co.'s No. 8 Wilbert ..... Derrick.
Standard Oil Co.'s No. 2 Case, Bayou Des Glaise ..... Location.

JEFFERSON PARISH

Humble Oil & Ref. Co.'s No. 1 Delaware, Sec. 2-16s-23e.. Drilling.

JEFFERSON DAVIS PARISH

Shell Petroleum Corp.'s No. 1 Heyd, Iowa ..... Location.
M. L. Vincent's No. 1 Richards, Sec. 22-7s-3w ..... Drlg. 2,239 ft.
Yount Lee Oil Co.'s No. 1 Courtney, Welsh ..... Abandoned 4,498 ft.
Yount Lee Oil Co.'s No. 1 Abbott, Welsh ..... Abandoned 4,400 ft.

LAFAYETTE PARISH

Pure Oil Co.'s No. 1 Marmelin, Carenero ..... Drlg. gumbo 1,784 ft.

LA FOURCHE PARISH

The Texas Company's No. 1 Leesville ..... Total depth hard sand 5,429 ft.; casing collapsed at 600 ft.

PLAQUEMINE PARISH

Humble Oil & Ref. Co.'s No. 1 Lake Washington, Lake Grand Ecaille ..... Fishing bailer 5,152 ft.
Humble Oil & Ref. Co.'s No. 2 Cockrell-Moran, Lake Grand Ecaille ..... Location.
Humble Oil & Ref. Co.'s No. 3 Cockrell, Lake Grand Ecaille ..... Drill stem stuck 467 ft.

ST. LANDRY PARISH

Herbert-Baker Oil Co.'s No. 1 Fisher, Sec. 10-3S-4e ..... No report.

ST. MARTIN PARISH

The Texas Company's No. 3 St. Martin, Hager ..... Drlg. 2,632 ft.

ST. MARY PARISH

Louisiana Land & Exploration Co.'s No. 1 Fox, Berwick.. Rigging.
Pure Oil Co.'s No. 2 Wax Lake, Sec. 12-17s-9e ..... Drlg. sticky shale 4,857 ft.
The Texas Company's No. 1 South Coast, Sec. 41-14s-10e.. No report.

TERREBONNE PARISH

Freeport Sulphur Co.'s No. 1 Nelson, Sec. 12-21s-11e .... Drlg. 5,554 ft.
Charles Paggi's No. 2 Evergreen, Sec. 145-15s-16e ..... Standing 1,818 ft.
The Texas Company's No. 4 State-Bay St. Elaine ..... Washing 5,186 ft.
The Texas Company's No. 3 State, Caillou Island ..... Rig.
The Texas Company's No. 4 State, Lake Barre ..... Cmtd. 6⅝-in. csg. 3,660 ft.
The Texas Company's No. 2-A State, Dog Lake ..... Abandoned in cap rock 5,096 ft.
The Texas Company's No. 4 La. L & E. Four Isle ..... Derrick.
The Texas Company's No. 2 State, Lake Pelto ..... Rig up to deepen.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 48)

Southerland et al's No. 1 Billingsley, 155 ft. to S line, 155 ft. to W line of 40 ac. off N end of 150 ac. in B. I. Hadley Sur. ..... Derrick.
Rio Bravo Oil Co.'s No. 3 S.A.&A.P.R.R., 395 ft. S of Pettus Townsite in Kerr Sur. ..... Location.
Edwin M. Jones' No. 1 Rapp, 990 ft. SE of NW cor. of Sec. 11 of Raxley Subd. in Jose Maria Urangua Sur... T. D. 3,920 ft.; cored sandy shale.
Houston Oil Co.'s No. 1 Newman, 300 ft. from S line, 300 ft. from W line of 197-ac. tract offset to Cosden's well in J. A. Kerr Sur. ..... T. D. 600 ft.; drlg.; set 315 ft. surface csg.
Rio Bravo Oil Co.'s No. 1 S.A.&A.P.R.R., A. Smalley Sur... Location.
Rio Bravo Oil Co.'s No. 2 S.A.&A.P.R.R., A. Kerr Sur..... Rig up.
Baxter Oil Co.'s No. 1 Mrs. H. J. Burns, 360 ft. from N line, 300 ft. from E line of N 100 ac. of 300-ac. farm in John Pace Sur., 2 miles W from Pettus ..... Rigging up.
Swift et al's No. 1 Mauldin, 155 ft. to N and E lines of 10-ac. tract out of the Mauldin W 125 ac. in the J. Pointevent Sur. ..... Location.
Ed Price's No. 1 Mrs. Laura E. Weiss, 200 ft. out of NW cor. of B.&B. 640-ac. Sur., E of Normanna, 6 miles W of Blanco Creek, in the B.&B. Sur. ..... T. D. 3,420 ft.; drlg. in shale.
Grayburg Oil Co.'s No. 1 A. J. Kimbell, C 189 acres in the Stephen Winship Sur. ..... T. D. 3,568 ft.; comp.; flowed 300 bbls. per day.

BROOKS COUNTY

Houston Oil Co. of Texas' No. 1 Wormser-Holbien, 1,550 ft. S. 2,650 ft. E of intersection of Lisandro Saenz & Manuel Saenz tracts, El Palo & Blanco de Maguellas grant, SW of Lasater discovery gas ..... Location.
Houston Oil Co.'s No. 2 Wormser, 200 ft. N of CSL, 964-ac. tract in the P. Maguellas Sur. ..... T. D. 450 ft.; drlg.
Humble Oil & Ref. Co.-Shell Pet. Corp.'s No. 2 Wm. Singels, 1,320 ft. W of E line, 1,800 ft. S of N line of Sec. 312, Alta Verde area, 7 miles SE from Lasater gas field ..... T. D. 2,858 ft.; drlg. in shale.

BEXAR COUNTY

Meore-Jauer's No. 1 Holly R. Ellison ..... T. D. 2,110 ft.; shut down.
Morgan Bros.' No. 1 Barkmeyer, 1,650 ft. to N line, 600 ft. to W line of 600-ac. tract in the P. Villapando Sur., 8 miles SE from San Antonio ..... T. D. 50 ft.; spudded in.
J. M. Russell's No. 1 F. L. Price, 1,590 ft. to N line, 660 ft. W line of tract in Angel Navarro Sur. .... T. D. 50 ft.; spudded in.
J. M. Russell's No. 1 A. O. Miles, 1,600 ft. N line, 600 ft. W line 450-ac. tract, Angel Navarro Sur., 10 miles S from San Antonio ..... T. D. 410 ft.; drlg. in sandy shale.
Henry Yelvington et al's No. 1 Beck, 355 ft. from W line, 310 ft. from S line 100-ac. tract, SW cor. of P. W. Hays Sur., 7 miles E from San Antonio ..... T. D. 1,470 ft.; shut down for casing.
Louis Wentz' No. 1 J. Cassiano, 150 ft. N and E line of J. Cassiano 400 ac. in J. Monte Sur. ..... T. D. 650 ft.; drlg. in shale; set 12½-in. surface csg.

CALDWELL COUNTY

Hinton et al's No. 1 Williams, 150 ft. N line, 150 ft. W line in J. H. Bowman Sur. ..... T. D. 1,200 ft.; drlg. in shale.
Brousche & Wilson's No. 1 Riddle, 150 ft. from SW line, 600 ft. from SE line of Addison Luton Sur., 8 miles NE from Lockhart ..... T. D. 2,250 ft.; abandoned.
W. E. Allaun's No. 1 Cosey, SW cor. of tract ..... Location.
Keen & Malcolm's No. 1 Mollie McNeal in the George Kimball Sur., 2,500 ft. W line, 860 ft. N line, 1 mile S from old Luling Field ..... T. D. 2,430 ft.; shut down in Edwards; old well reinstated.

COLORADO COUNTY

Penn Oil Co.'s No. 1 H. C. Wilson, 450 ft. from W line, 450 ft. from E line of 50-ac. tract in the John McCrosky Sur., 5 miles E from Columbus ..... T. D. 2,190 ft.; drlg. in gumbo.

DEWITT COUNTY

Gibson & McIntyre's No. 1 William Van Roeder ..... T. D. 1,480 ft.; abandoned.
Louisiana Oil & Ref. Co.'s No. 1 William Kleavermann 100-ac., 400 ft. out of the NE cor. of tract, 3 miles SW of Nordheim near Karnes County line in the Robert Gallettry Sur. ..... T. D. 4,010 ft.; dry and abandoned.
Russell & Slick's No. 1 G. W. Weisgarver, 619 ft. N line, 1,200 ft. E line of 125-ac. farm in W cor. of county in the W. M. Lytle Sur. ..... T. D. 2,700 ft.; testing.
H. T. Roe's No. 1 Leinhardt ..... T. D. 2,215 ft.; shut down.

DUVAL COUNTY

Vacuum Oil Co.'s No. 1 C. W. Hahl, Sur. 280 ..... Location.
Sal Oil & Gas Co.'s (Southern Oil Co.) No. 2 Welder-Wood, 1,980 ft. E line, 2,490 ft. N line Sur. 215 ..... Derrick.
T. W. Callahan and W. M. Howard's No. 1 J. M. Luby, 3,960 ft. N line, 3,960 ft. W line Sur. 24 ..... T. D. 3,330 ft.; drlg.
Putnam & Walsh's No. 1 Hagist, 570 ft. N line, 150 ft. E line, Blk. 5, Sur. 269 ..... T. D. 100 ft.; drlg.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 330 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 ..... T. D. 3,740 ft.; drlg. in lime.

FAYETTE COUNTY

Muldoon Oil Co.'s No. 1 J. A. Kerr, 2,900 ft. from S, 3,250 ft. from W of M. Muldoon Sur., 2 miles W of Muldoon ..... T. D. 3,475 ft.; drlg. in sandy shale.
Hoffer-Stanton's No. 1 M. E. Manton, 700 ft. from N line, 275 ft. from E line 102-ac. tract in the W. H. Taylor Sur., 8 miles NE from Muldoon ..... Drlg. 2,320 ft. in sandy shale.

GOLIAD COUNTY

Union Prod. Co.'s No. 12 George Ray, 2,350 ft. SW of NE line, 330 ft. NW of SE line George A. Ray 400 ac. in the Wm. Southerland Sur. ..... T. D. 800 ft.; drlg. shale and sand.
A. G. Riemenschneider's No. 1 A. T. Fromme, 275 ft. from N line, 912 ft. W line of 300-ac. tract, P. Dexter Sur. ..... T. D. 723 ft.; drlg. in sandy shale.
Wm. F. Morgan's No. 1 Peirrie, 7,600 ft. SW of NE line, 2,550 ft. SW of NW line of Fannie Peirrie 2,350-ac. tract, SW part of county in the Vincente Ramon Sur. ..... T. D. 5,150 ft.; drlg.

GONZALES COUNTY

Mardon Oil Co.'s No. 1 Bovier, 150 ft. N and W lines in the James Stewart Sur., 5 miles NW from Waelder ..... T. D. 1,850 ft.; shut down.
Linden Pet. Corp.'s No. 1 Hemsley, 650 ft. N line, 1,110 ft. W line of J. W. Hemsley 100 ac. in the James Smith ..... Rig up.
Acme Oil & Royalty Corp.'s No. 1 Weber, Thomas Wright Sur. ..... T. D. 2,350 ft.; shut down.
A. J. Keiffer et al's No. 1 B. B. Dix, 5,550 ft. W of E line, 2,775 ft. N of S line (Guadalupe River) in the Ira Nash Sur., 4 miles SE from Darst Creek ..... T .D. 2,800 ft.; shut down.
Finnell & Elam's No. 1 J. F. Robinson, 2,000 ft. N line, 4,420 ft. E line, in the J. H. Livergood, 2½ miles NE from Waelder ..... T. D. 2,545 ft.; shut down

GUADALUPE COUNTY

Adams & Lyles' No. 1 Denman, 838 ft. W line, 1,000 ft. N line of G. Denman 491-ac. tract in the William Havington Sur. ..... Rig up.
Grayburg Oil Co.'s No. 2 Wells, 5,730 ft. E line, 2,490 ft. S line of NE cor. of Wells tract in the James D. Baume Sur., 6 miles SW from Darst Creek ..... Waiting on drilling rig.
Cranfill & Reynolds' No. 1 Wilson, 150 ft. S line, 1,200 ft. to W line 92-ac. tract in the Jesus Canter Sur., 8 miles SE from Seguin ..... Location corrected.
Brown Hinds et al's No. 1 George Altzger, 1,300 ft. from SE line, 1,100 ft. from SW line, of 120-ac. tract in A. Mansola Sur. ..... T. D. 1,760 ft.; drlg. in chalk.
Hadley et al's No. 1 Hartwig, 2,000 ft. S-N line, 930 ft. E-W line of survey, Wm. Hartung 656-ac. in the Richard Nixon Sur., 6 miles SW from Darst Creek .. T. D. 3,100 ft.; drlg. in chalk.
Penn Oil Co.'s No. 1 State Land, 1,300 ft. W line J. C. Darst Sur., 1,300 ft. NE line R. Moss 50-ac., near SE cor. J. K. Davis Sur., 2½ miles SW from Darst Creek ..... T. D. 1,940 ft.; drlg. in sticky shale.

JACKSON COUNTY

The Texas Company's No. 1 Mitchell, 1,750 ft. E, 880 ft. N of SW cor. Ewing Sur. ..... T. D. 3,102 ft.; sand; coring.

JIM WELLS COUNTY

E. W. Ogden's No. 1 G. Farris, M. Perez Sur. ..... T. D. 2,615 ft.; dropped from reports.

KARNES COUNTY

Hewitt et al's No. 1 H. N. Matula, 450 ft. from E and center of NW and SE lines of 125-ac. farm in the Victor Blanco Sur. ..... T. D. 4,000 ft.; abandoned.
H. M. Lightfoot et al's No. 1 Barnett in the Alex Hunter Sur., 6 miles N of Karnes City ..... T. D. 2,916 ft.; preparing to deepen from abandoned depth, was carried as J. G. Fisher et al.
J. F. Morrisey et al's No. 1 Ragsdale, 660 ft. SW of C of NE line of 170-ac. farm in the McCouil Sur. .... T. D. 1,335 ft.; to core.
Dr. Hewitt's No. 1 W. E. Porter, 650 ft. from N line, 700 ft. from W line of 416-ac. tract in the Victor Blanco Sur., 8 miles SE from Runge ..... T. D. 2,700 ft.; drlg. in shale.
Moody-Seagraves' No. 1 W. W. Boyce, 2,110 ft. from E line, 487 ft. from S line in the W. W. Boyce Sur. .... T. D. 3,640 ft.; drlg. in sandy shale.
Mundine Investment Co.'s No. 1 A. D. Wilburn, C of 143 ac. in H. K. Hardy Sur., 3 miles SE from Dunge ..... T. D. 500 ft.; drlg.
Hewitt et al's No. 1 W. E. Porter ..... T. D. 3,650 ft.; abandoned.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 730 ft.; shut down.
A. S. Mowinkle's No. 1 Kaston, 150 ft. from N line, 150 ft. from E line of tract, Sur. No. 724, 9 miles due W of Kendalia ..... T. D. 460 ft.; drlg. sandy lime.
Sitten et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 550 ft.; shut down.
Dickinson et al's No. 1 Edmondson, 150 ft. from S line, 350 ft. from W line of tract in the J. O. Blair No. 72 Sur., 1 mile NW from Kendalia ..... T. D. 40 ft.; spudded in and shut down.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale ..... T. D. 1,755 ft.; hard lime; shut down.
P. B. Sterling's No. 1 McCracklin, 1,350 ft. from N line, 250 ft. from W line of the B. G. Owens Sur. 4 miles W from Kendalia ..... T. D. 350 ft.; drlg. in broken shale.
C. R. Dutton's No. 1 J. Lawhon, Sec. 10, 2,475 ft. E line, 1,488 ft. S line ..... Location.

KERR COUNTY

Mashe & Tunstill's No. 1 Love Ranch, 1,000 ft. from W line of Sec. 1,594, 100 ft. S of S line of Sec. 1,597, in the G.C.S.D.&R.G.N.G. Sur. ..... T. D. 450 ft.; drlg. in lime.

KLEBERG COUNTY

Bowen & Sarles' No. 1 Robert, H. Simmons in the A. Houston Sur. No. 611, Sec. 7, King Subd., 150 ft. out of NW cor. of SW ..... T. D. 1,580 ft.; shut down; repairing rig.

KINNEY COUNTY

Magnolia Petroleum Co.'s No. 1, SE cor. of Bladx Sur., near S.P.R.R., close to Blume test on Wardlow ranch, W part of county, 2½ miles from Blume .... T. D. 2,210 ft.; drlg. in hard shale.
A. Blume et al's No. 2 Herbst, 1,731 ft. W and S lines of Sur. in the Poindexter-Burns Sur. ..... T. D. 275 ft.; shut down.
Mardon Oil Co.'s No. 2 Jim Clamp, in the John Winter Sur. No. 346, near No. 1 ..... T. D. 1,400 ft.; dropped from reports until work is resumed.

KIMBLE COUNTY

Lindley Bros.' No. 1 Anderson, Sec. 178, Mubenger Sur... T. D. 990 ft.; shut down.

Only a Fast Receding Stern

"Ditching Snapshots and Records"
logs cost and sailing records on the Flying Diamond Fleet. In the interest of finishing your own digging jobs faster and cheaper write for a copy today.

and a Clean Cut Wake of Ditch

When the sailing gets so rough that other ditchers are hard-put to navigate at all, then the fast-flying ditchers of the Flying Diamond Fleet are at their best.

When the soil underfoot rings hard and rocky—when tough fibrous roots line the course—when uncharted reefs of underground pipe and conduit lie hidden before you—then more than ever do Barber-Greenes flaunt their heels in the face of all rivals.

The ability to cut through such tough going which stops many ordinary ditchers, emphasizes Barber-Greene speed in the open.

All these things are not matters of mere words but of actual digging deeds traceable to a design that is entirely different from that of any other digging machine in the world.

Only the ditchers that sail beneath the Flying Diamond Pennant have

The Patented Vertical Digging Boom and the Patented Overload Release

The first provides the high-speed "milling action" digging that goes through anything into which you can drive a pick.

The second provides the automatic safety factor that makes such digging possible—and at the same time protects the underground pipes met by the digging teeth.

In addition these features combine to give you a more compact machine capable of extreme maneuverability.

And, with a Barber-Greene you can set sail for any port 50 feet or 50 miles away, with the assurance that you will

get there sooner—
with a very minimum of lost ditch—
with no S. O. S. calls for pick and shovel help.

The FLYING DIAMOND FLEET

BARBER-GREENE COMPANY » 600 West Park Avenue « Aurora, Illinois

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. ..... T. D. 685 ft.; shut down.

LIVE OAK COUNTY

O. Stalley et al's No. 1 Nichols, 2,000 ft. from W line, 500 ft. from S line in the Ayers Sur. ..... Location.
Dougherty et al's No. 1 Jim Dougherty, 2,254 ft. SE of NW line, 750 ft. NE of SW line of M. Boren Sur. ..... T. D. 3,860 ft.; drlg. in shale.

MAVERICK COUNTY

Rycade Oil Corp.'s No. 6 Chittim, 1,445 ft. from S, 320 ft. from W of Sec. 116, Blk. 7, I.&G.N. Sur. ..... T. D. 2,636 ft.; shut down.
Rycade Oil Corp.'s No. 5 Chittim, 600 ft. W of No. 3 Chittim, 500 ft. E line, 225 ft. from S line of SE Sec. 115, Blk. 7, in the I.&G.N. Sur. ..... T. D. 3,925 ft.; drlg. in lime rock.
Rycade Oil Corp.'s No. 5 Sullivan, in C of Sec. 82, Blk. 7, in the I.&G.N. Sur. ..... T. D. 5,661 ft.; drlg. Glen Rose.

MEDINA COUNTY

Pat Armstrong's No. 1 C. W. Butts, in George C. Hanson Sur. ..... T. D. 1,850 ft.; test sulphur water.
Pearson Oil Co.'s No. 1 Whiteside, 200 ft. N and W lines, Sec. 39, Blk. 9-A, in the H. W. Hewitt Sur. .. Spudded in; dropped from reports; duplication.
Lynko Oil & Gas Corp.'s No. 1 Irrigated Farms, 160 ft. from E line, 500 ft. from S line of 36-ac. tract, Lot 50, Blk. 2, in the S. A. Trust Sur. ..... Location.
Kirby Pet. Co.'s No. 1 J. M. Fusselman, Sec. 208, 150 ft. from S and E lines in the S. Castro Sur. ..... T. D. 600 ft.; drlg. in shale.
Pearson Oil Co.'s No. 6 Medina Valley Inv. Co., 2,500 ft. S and E line of lease of Isom Palmer Sur. ..... T. D. 350 ft.; shut down.
Pan American Pet. Co.'s No. 1 Antoine Hart, in Harrison Sur. No. 799, 15 miles S from Hondo ..... T. D. 1,157 ft.; set csg. at 1,107 ft.; sand; shut down; W.O.C.
National Oil Co.'s No. 1 Howard, 1,750 ft. E of W line, 1,854 ft. N of S line of survey in the John George Sur. No. 9, 10 miles S of Dunlay ..... T. D. 328 ft.; drlg. in rock.
Sun Oil Co.'s No. 1 Edgar, 450 ft. from E line, 150 ft. from S line of 320-ac. tract in the J. Buell No. 362, 3 miles N from Noonan ..... T. D. 800 ft.; drlg. in Anacacho.
Sunflower Oil Co.'s No. 1 M. Modfield, 3,340 ft. from E line, 1,335 ft. S line of 640-ac. tract, Sur. 532, 10 miles S from Hondo ..... T. D. 928 ft.; swab. 20 bbls. per day; will deepen.
Donaldson Oil & Dev. Co.'s No. 2 Hillenmeyer, James Hillenmeyer No. 25 Sur., 500 ft. to E line of Sur., 150 ft. to S line of N half of Sur. ..... T. D. 300 ft.; shut down.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of Sur., 478.6 miles W from Devine ..... T. D. 400 ft.; shut down.

NUECES COUNTY

R. A. Thompson, trustee, et al's No. 1 Lawrence Harrell, 300 ft. N of S line and equal distance from E and W lines of Blk. 19, Sheppard farm lots subd., 4 miles W of Corpus Christi ..... T. D. 410 ft.; drlg. plug of 10-in. surface csg.

SAN PATRICIO COUNTY

George B. Pickett's No. 1 Baldwin, 9,000 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Neil Sur., Abstract 211 ..... T. D. 3,116 ft.; coring and testing.
Cosden Oil Co.'s No. 1 Schmolsteig, C of SE Sec. 9, H. Powell Subd. in the B. Blanchard Sur. ..... Location.
LaFeria Oil & Gas Co.'s No. 1 C. C. Smith, in J. C. White Sur., 690 ft. to N line, 350 ft. to E line ..... T. D. 3,050 ft.; shut down in sandy shale.

STARR COUNTY

I. V. Maclean's No. 1, Tract No. 5, 1,063-ac., Porcion 81, Juan Jose de la Garza in the Falcon grant ..... Location.
Kush Expltn. Co.'s No. 1 ..... T. D. 100 ft.; drlg.
Atlee Drlg. Co.'s No. 1 M. West, 5,100 ft. to NE line, 1,050 ft. to NW line of 1,800-ac. tract in the P. DeWitt Sur. ..... T. D. 1,160 ft.; drlg. in shale and gumbo.
Smith & Adams' No. 1 Welch, Perdernal Sur. ..... T. D. 900 ft.; drlg.

UVALDE COUNTY

Waldrop & Welch's No. 1 H. S. Benson, 2 miles NW of Uvalde ..... T. D. 1,412 ft.; drlg. in lime rock.
Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomez Sur., 8 miles S of Uvalde ..... T. D. 1,160 ft.; shut down.
Phantom Oil Co.'s No. 1 Claudt, Sec. 611 ..... T. D. 2,250 ft.; black shale.

VICTORIA COUNTY

Lion Oil & Ref. Co.'s No. 1 J. A. McFadden, 2,577 ft. W, 514 ft. N from NE cor. of C. O. Edwards tract in M. J. Travies Sur. ..... T. D. 3,747 ft.; comp. 40,000,000 ft. dry gas.
The Texas Co.'s No. 1 A. M. McFadden, 1,550 ft. N and E lines of H. Bonny Sur. ..... Rig up.

WEBB COUNTY

J. L. Elliot's No. 1 Esperonza Land & Stock Co., 950 ft. from N line, 2,231 ft. E line Sur. 815 ..... Location.
O. W. Killam's No. 8 W. C. Billings, 100 ft. E line, 2,788 ft. S line Sur. 1 ..... T. D. 1,800 ft.; drlg.

WILLACY COUNTY

Weimer-Richardson's No. 1 Elmore ..... T. D. 1,860 ft.; shut down in gumbo.

WILSON COUNTY

Transcontinental Oil Co.'s No. 1 J. H. Bain, 150 ft. out of E cor. of tract, 1,850 varas from SW line and 75 varas from SE line of Noel F. Roberts Sur. ..... T. D. 2,000 ft.; drlg. in sandy shale.

WILLIAMSON COUNTY

Harlem et al's No. 1 H. H. Stiles, in the J. Bevil Sur., 320 ft. N and 330 ft. E of Sur. ..... Rigging up.
Fred Beatty's No. 1 H. Bland, 450 ft. from N line, 1,000 ft. from E line of tract, in the P. Coursey Sur., 1 mile E from Taylor ..... T. D. 1,176 ft.; shut down.
Fred Beatty's No. 1 J. B. Pumphrey, 1,328 ft. from S and E lines of Mrs. J. B. Pumphrey 158-ac. tract in the W. Cartwright Sur. ..... Rigging up.
M. Bartlett et al's No. 1 R. E. Thomas, 450 ft. from N line, 170 ft. from E line of S 50 of 100-ac. of farm in the H. Owen Sur. ..... Spudded in.
E. L. Chapman's No. 2 J. H. McConnell, 1,070 ft. from W line, 150 ft. from N line of tract in the S. Miller Sur. ..... Rigging up.
Elliot et al's No. 1 S. W. Jones, 600 ft. from W line, 400 ft. from S line of Alvert Nantz Sur. ..... Spudded in.
E. L. Chapman's No. 2 Fuchs, 150 ft. SW line, 750 ft. NW line of 93-ac. tract in the S. Miller Sur. ..... T. D. 1,000 ft.; drlg.
G. B. Peterman's No. 2 J. C. Abbott, 450 ft. from S and W line of Abbott 100-ac. tract, in the Simon Miller Sur., SE from Thrall ..... Rigging up.
Bridwell et al's No. 1 H. L. Martin, 1,150 ft. from N line, 150 ft. from W line of Simon Miller Sur. ..... Rigging up.
McNeil et al's No. 1 R. L. Abbott, 300 ft. NW line, 150 ft. NE line of Abbott 15-ac. tract, in the S. Miller Sur. ..... Spudded in.
Powell & Kykendall's No. 1 Christian Mager, in the W. Byerly Sur., 150 ft. N and 450 ft. E of farms of 150 acres ..... Old well deepening.
E. L. Chapman's No. 1 Barney Lawrence, 330 ft. from SE and SW lines of farm, in the Simon Miller Sur. .. Rigging up.
E. L. Chapman's No. 1 J. F. McConnell, 150 ft. from S and W of 100-ac. farm in the Simon Miller Sur. .. T. D. 1,932 ft.; Serpentine; light show oil 1,900 ft.
E. R. Ertell's No. 1 J. F. McConnell, 295 ft. from N line, 180 ft. from W of S 50-ac. of 100-ac. farm, in the Simon Miller Sur. ..... T. D. 2,136 ft.; small oil show 1,100 ft.
Keeshan et al's No. 1 R. L. Abbott, 170 ft. from N line, 772 ft. from W line of farm, in the Simon Miller Sur. ..... Derrick up.
E. W. Marts et al's No. 1 R. L. Abbott ..... Spudded in.
Taylor Temple Oil Co.'s No. 1 F. M. Cain, 876 ft. from E line, 150 ft. from N line of C. D. Johnson 109-ac. tract in the S. Miller Sur. ..... Rigging up rotary.
J. A. Thompson's No. 1 T. H. Martin, 150 ft. N and E lines of 20-ac. tract in the S. Miller Sur. ..... Location.
Westheimer & Daube's No. 1 R. L. Abbott, 150 ft. from N and W lines of 57-ac. tract in the S. Miller Sur. .. Location.
R. R. Wilder's No. 1 H. T. Martin, 158 ft. from N and E lines of H. T. Martin 76.25-ac. tract in the S. Miller Sur. ..... Rigging up rotary.
L. W. Wilson et al's No. 1 W. L. Lawrence, 150 ft. from W line and C N and S of 35-ac. tract or 1,400 ft. from SW line, 1,450 ft. SW line of H. Owens Sur. ... Spudded in.

ZAPATA COUNTY

B. F. Nixon's No. 1 A. Gutierrez, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 8, Partition 10, Borrego grant .... Rigging up.
Penny Prod. Co.'s o. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 33 and 34, Blk. 1, Sur. 2 ..... Derrick.
Penny Prod. Co.'s No. 1 Trevino, 300 ft. SE line, 200 ft. NE line Marts & Beavers Subd. of Por. 2 and 3, Blk. 6, Sur. 4 ..... T. D. 460 ft.; drlg.
National Oil Co.'s No. 1 D. B. Adams ..... T. D. 1,200 ft.; sand shows oil odor.

ZAVALA COUNTY

Krebs & Davis' No. 1 Weatheresby, E center of NW of Sec. 44, Blk. A, Adams, Beaty & Mouton Sur., 4 mi. E from Loma Vista ..... T. D. 1,550 ft.; drlg. in shale.
Texas Gas Utilities Co.'s No. 6 A. M. West, C of Sur. in the M. Suniga Sur. No. 44 ..... Location.
Welgand Bros.' No. 1 W. L. Gates, Hooper & Wade Sur. No. 13, 1,320 ft. S of N line, 1,220 ft. W of NE cor. Sur., about 16 miles S of Batesville ..... T. D. 2,300 ft. (corrected depth); shut down.
Jack Baldwin's No. 1 J. R. Price, in the W. E. Erskin Sur. No. 34 ..... T. D. 2,260 ft.; drlg. in shale.
Southern Crude Oil Purch. Co.'s No. 1 Nat M. Washer, in the T. Pinckhardt Sur. No. 180, 1 deg. E, 6,795 ft. from SE cor. ..... T. D. 4,709 ft.; plugging back.
Texas Fuel & Gas Co.'s No. 5 West, 150 ft. from SE line, 4,700 ft. from SW of Marguett Singer Sur., 20 miles SW from Batesville ..... T. D. 1,500 ft.; shut down.
F. Baldwin's No. 1 Washer, 300 ft. S and E of Sec. 34, in the W. E. Erskin Sur. ..... T. D. 2,185 ft.; drlg. in hard shale.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 47)

Nick Barbare et al's No. 1 L. McGraw, 150 ft. N, 150 ft. W, SE cor. SW NW, Sec. 30-10-9 ..... Began drlg. June 11; cmtd. 10-in. 60 ft.

CLAIBORNE PARISH

El Dorado Chief Oil Co.'s No. 1 Dance, C SW NE, Sec. 27-20-7 ..... S.D. 2,240 ft.
Leue Oil Co.'s No. 1 Taylor, 1,153 ft. S, 360 ft. W, C, Sec. 16-22-6 ..... S.D. 2,864 ft.
Triangle Drlg. Co.'s No. 2 Caskey, 660 ft. N, 660 ft. W, SE cor., Sec. 6-19-5 ..... Cmtd. 6⅝-in. 4,165 ft. reported in error; cmtd. 9-in. 4,186 ft; coring anhydrite 4,260 ft.

CONCORDIA PARISH

A. C. Glassell's No. 1 Pittsfield Plantation, N 9°, E 1,320 ft., SW cor., Sec. 41-8-10 ..... Blew out between 1,392-1,450 ft; estimated 1,000,000 ft. gas; bridged; arranging to recmt. 8¼-in. 1,370 ft.
Joe Marr et al's No. 1 Maxwell, C, Sec. 35-3n-8e ..... Cmtd. 8-in. 2,820 ft.

DE SOTO PARISH

Benson Oil Co.'s No. 1 Harris, Sec. 6-10-13 ..... Tested dry; show gas; W.O. 2,650 ft.
Joe Burnham et al's No. 1 Mary Hood, 320 ft. W, 201 ft. S, NE cor. SE NE, Sec. 3-11-14 ..... Drlg. 700 ft.
Sam Gold et al's No. 1 Platt, 200 ft. S, 200 ft. W, NE cor. SW, Sec. 23-13-14 ..... Rig up.
Bud Harrell's No. 1 Horton, 450 ft. E, 150 ft. N, SW cor., Sec. 4-11-11 ..... S.D. 1,060 ft.
Michlouzanna O. & G. Co.'s No. 1 Payne, 410 ft. S, 398 ft. E, NW cor., Sec. 12-11-16 ..... O.W.D.D.; completed by Clark & Melat; arranging to deepen; T. D. 2,556 ft.
R. O. Roy's No. 1 Nelson, 660 ft. S, 660 ft. E, NW cor., Sec. 36-15-13 ..... Cmtd. 10-in. 292 ft.; drlg. 400 ft.

EAST CARROLL PARISH

La. Gas & Fuel Co.'s No. 1 Hicks, 1,320 ft. N, 759 ft. W, SE cor., Sec. 12-19-10 ..... Drlg. gumbo 1,887 ft.

FRANKLIN PARISH

Davis et al's No. 1 Moore, 600 ft. W, 200 ft. S, NE cor., Sec. 12-11-6 ..... S.D. 1,430 ft.

JACKSON PARISH

El Dorado Chief O. & G. Co.'s No. 1 Sou. Advance Paper Bag Co., 225 ft. N, 275 ft. E, SW cor. SW NE, Sec. 35-15-4 ..... S.D. repairs; T.D. 1,100 ft.

LINCOLN PARISH

Ark. Fuel Oil Co.'s No. 1 Lewis & Co., 300 ft. N, 300 ft. W, SE cor. NW SE, Sec. 26-20-4 ..... D.S. test 2,682-90 ft. (top Blossom) 1,000 ft. S.W.; drlg. gray shale 3,150 ft.

MOREHOUSE PARISH

Ruston Drlg. Co.'s No. 1 Tucker & Platt, 660 ft. N, 860 ft. W, SE cor. NE, Sec. 8-20-6 ..... Cmtd. 12-in. 190 ft., 8-in. 890 ft.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10 ..... Began drlg. May 3; cmtd. 12½-in. 150 ft.; S.D. for title work.
S. D. McDaniel's No. 2 Clark & Morse, 800 ft. E, 350 ft. N, C, Sec. 23-5-6 ..... Tested 1,000,000 ft. gas and S.W. 3 ft.; S.D. for orders; T.D. 2,526 ft.
Robeline O. & G. Co.'s No. 1 Winn, 558 ft. N, 348 ft. E, SW cor. SE, Sec. 7-8-9 ..... S.D. 1,600 ft.

RAPIDES PARISH

Ayers Bros.' No. 1 Wickliff, 2,790 ft. N, 150 ft. E, SW cor., Sec. 9-5n-2e ..... S.D. for fuel 2,650 ft.

RED RIVER PARISH

W. D. Ball's No. 1 Krumholtz, 660 ft. S, 660 ft. E, NW cor., Sec. 32-14-10 ..... Tested S.W. and show oil 6 ft. sand 1,700 ft.; drlg. shale 1,866 ft.
E. C. Lucas' No. 1 La. Pecan Co., Sec. 26-13-11 ..... Cmtd. 8-in. 785 ft.
Geo. L. Pace et al's No. 1 Clarkson, 200 ft. S, 200 ft. E, NW cor, NE, Sec. 30-12-9 ..... Rig up.

RICHLAND PARISH

Austin & McDonald's No. 1 Hunt, 594 ft. N, 660 ft. E, SW cor., Sec. 13-17-5 ..... Derrick.
Austin & McDonald's No. 2 Millsaps, SW cor., Sec. 17-17-6 ..... Waiting orders; T.D. 2,657 ft.
Austin & McDonald's No. 3 Millsaps, 1,980 ft. S, 660 ft. E, NW cor., Sec. 16-17-6 ..... Tested S.W.; W.O. 2,477 ft.

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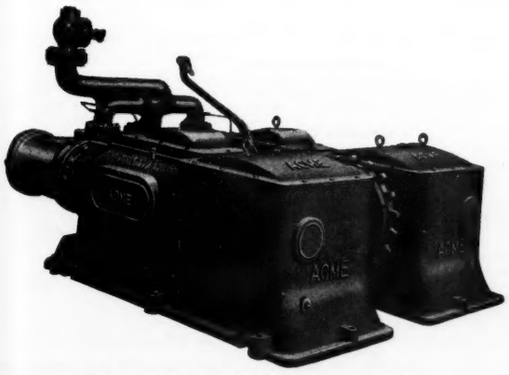

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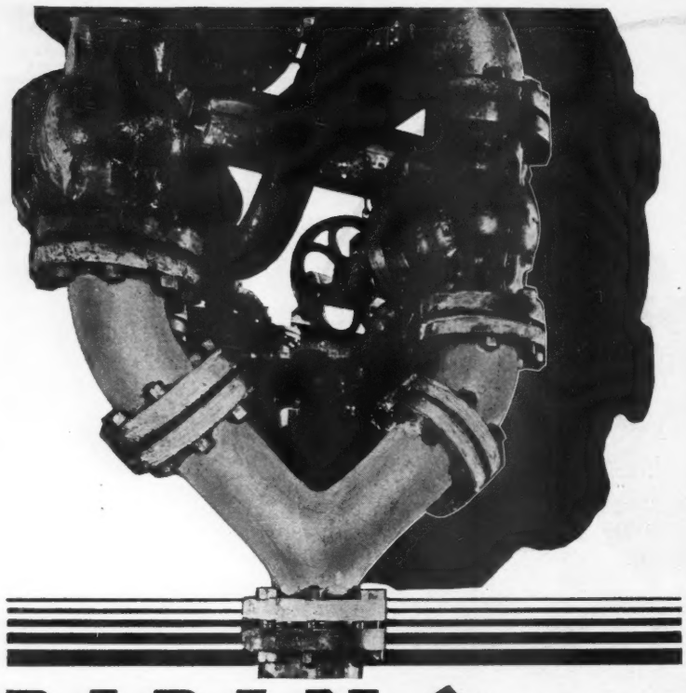

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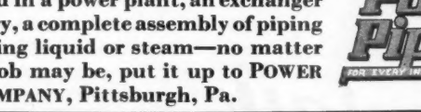

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Austin & McDonald's No. 4 Millsaps, NW cor., Sec. 16-17-6 ..... Location.
Austin & McDonald's No. 5 Millsaps, 2,640 ft. N, 1,320 ft. W, SE cor., Sec. 8-17-6 ..... Derrick.
W. C. Feazel's No. 1 Landrum, 620 ft. N, 4,573 ft. E, SW cor., Sec. 6-16-7 ..... Derrick.
Island Gas Co.'s No. 1 Noe, 1,902 ft. N, 660 ft. W, SE cor., Sec. 3-16-5 ..... Location.
Palmer Corp.'s No. 1 Seubert, 1,356 ft. N, 88° 35' W, 660 ft., SE cor., Sec. 1-16-5 ..... Derrick.

SABINE PARISH

Ark.-La. P. L. Co.'s No. 1 Whitney, 660 ft. S, 660 ft. E, C, Sec. 28-10-14 ..... Began drlg. June 24; drlg.
Lohman & Walker's No. 1 Hubley, 330 ft. N, 330 ft. W, SE cor. SE NE, Sec. 21-7-11 ..... Derrick.
Boone, trustee's No. 1 J. B. Hill, NE, Sec. 4-6-11 ..... (No check); derrick.
Longoria et al's No. 1 Belton, 330 ft. S, 330 ft. E, C, NE, Sec. 31-9-13 ..... Rig up.
Loring Oil Co.'s No. 1 Peavy-Wilson Lbr. Co., 200 ft. S, 330 ft. W, NE cor. SW NE, Sec. 21-6-13 ..... Top Blossom 3,535 ft.; arranging to cement 10-inch. 3,618 ft.
Lohman et al's No. 1 Watt Lbr. Co., 150 ft. S, 330 ft. E, NW cor. NE SW, Sec. 18-4-11 ..... Rig up.
J. C. McDaniel & Lieber's No. 1 Batson, 675 ft. N, 318 ft. E, SW cor. SE, Sec. 16-18-12 ..... Slight show oil; bailing; T.D. 2,526 ft.
Paramount O. & G. Co.'s No. 1 Woolems, 330 ft. N, 330 ft. W, SE cor. NE NW, Sec. 11-6-12 ..... S.D. 1,656 ft.
Pelican O. & G. Co.'s No. 2 La. Long Leaf Lbr. Co., C NE, Sec. 20-7-12 ..... Tested 100,000 ft. gas 2,707 ft.; arranging test 2,833 ft., dry 2,833 ft.; arranging test 2,935 ft.
Pelican Nat. Gas Co.'s No. 2 Sabine Lbr. Co., 350 ft. S, 350 ft. E, C, Sec. 16-7-12 ..... Cmtd. 6⅝-in. 2,302 ft.; D.S. test 2,358 ft.; drlg. 2,365 ft.
D. H. Riddick's No. 1 Scretchfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 18-9-12 ..... Missed D.S. test 3,170 ft.; coring lime 3,262 ft.
San Miguel Oil Corp.'s No. 1 Blankenship, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 20-9-11 ..... Derrick.
H. T. Stacey et al's No. 1 Polly, NE cor. NE NE, Sec. 18-8-12 ..... Rig up.
Teteco Oil Corp.'s No. 1 La. Long Leaf Lbr. Co., 325 ft. S, 100 ft. W, NE cor. NW, Sec. 18-6-12 ..... Drlg. lime 3,870 ft.

TENSAS PARISH

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... Cmtd. 8-in. 1,830 ft.

ARKANSAS

ASHLEY COUNTY

J. D. Marcum Co.'s No. 1 McGarry, 300 ft. W, 100 ft. S, C, Sec. 10-19-4 ..... O.W.D.D.; arranging to deepen; T.D. 3,300 ft.

CALHOUN COUNTY

Tidal Oil Co.'s No. 1 Freeman-Smith Lbr. Co., 150 ft. C S line, NE NW, Sec. 3-16-14 ..... Began drlg. June 18; fishing 3 jts. 15½-in.; T.D. 105 ft.

CLEBURNE COUNTY

Cosden Oil Co. of Ark.'s No. 1 Donophan, 100 ft. S, 660 ft. E, NW cor. SW SE, Sec. 19-9-10 ..... Drlg. 3,695 ft.
Donnelly-Craver et al's No. 1 Doniphan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... Drlg. 1,200 ft.

COLUMBIA COUNTY

S. Y. Dorfman et al's No. 1 Merritt, 923 ft. S, 160 ft. W, NE cor. SE NW, Sec. 25-19-22 ..... Began drlg. June 17; cmtd. 10-in. 186 ft.; drlg. 400 ft.
Parker et al's No. 1 Franks, 330 ft. S, 330 ft. W, C, Sec. 25-19-22 ..... S.D. 2,835 ft.
J. K. Wadley's No. 1 Longino, 330 ft. E, 330 ft. S, NW cor., Sec. 32-18-22 ..... Drlg. 1,350 ft.

DREW COUNTY

McClintock & Goodka's No. 1 Ogles, 920 ft. W, 400 ft. S, NE cor., Sec. 35-13-5 ..... S.D.; W.O. 2,625 ft.

FRANKLIN COUNTY

Red Bank Oil Co.'s No. 1 Edtin, SW cor., Sec. 33-10-26 .. Tested 1,000,000 ft. gas 1,317 ft. and 1,576 ft.; show gas and S.W. 2,155 ft.; drlg. 2,250 ft.

GARLAND COUNTY

Givens et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-3-19 ..... S.D.; W.O. 3,604 ft.

GRANT COUNTY

J. R. Lockhart's No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... Derrick.

LAFAYETTE COUNTY

Crawford Drlg. Co.'s No. 1 Vaughn, 200 ft. S, 200 ft. W, NE cor. SE NE, Sec. 25-19-25 ..... Derrick.

LITTLE RIVER COUNTY

A. L. Buck's No. 1 Greason, NW NW, Sec. 25-12-32 .... Fishing bit and collar; T.D. 2,502 ft.
McDonald & Shaw's No. 1 W. E. Black, 240 ft. N, 450 ft. W, SE cor. SE NE, Sec. 12-13-28 ..... Arranging to set 6⅝-in; T.D. 2,180 ft.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D.; W.O. 3,610 ft.

MADISON COUNTY

J. W. Baxter's No. 1 Hallem, C NE SW, Sec. 17-16-26 .. Began drlg. June 8; S.D. repairing rig; T.D. 160 ft.

MILLER COUNTY

Lenz et al's No. 1 G. W. Johnson, 400 ft. S, 400 ft. W, NE cor. SW, Sec. 24-15-26 ..... Began drlg. June 18; cmtd. 10-in. 81 ft.; drlg. chalk 1,820 ft.

OUACHITA COUNTY

Anderson & Wimmer's No. 1 Buck, Sec. 7-15-17 ..... Sidetracking D.S.; T.D. 2,735 ft.
Belmont et al's No. 1 Buck, SE cor. SE SW, Sec. 16-15-17 ..... Began drlg. June 20; S.D.

PIKE COUNTY

Theo. Davis, trustee's No. 1 Ruth Wilson, 200 ft. S, 200 ft. W, NE cor., Sec. 25-5-26 ..... Fishing 700 ft.; S.O.

POPE COUNTY

Ark.-La. P. L. Co.'s No. 1 J. E. Moore, 330 ft. N, 330 ft. E, SW cor. SE NE, Sec. 16-9-21 ..... Location.
Cosden Oil Co.'s No. 1 Mo. Pac. R.R., 660 ft. N, 660 ft. E, SW cor. NW SE, Sec. 13-9-19 ..... Drlg. lime 4,459 ft.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... Tested show of gas 1,508 ft.; fishing cable tools; T.D. 1,530 ft.

SEBASTIAN COUNTY

W. M. Greeson's No. 1 Spears, Sec. 9-7-29 ..... Drlg. 2,250 ft.
Lava O. & G. Co.'s No. 9 Cason, Sec. 21-8-30 ..... D.S. test 2,700 ft., 1,500,000 ft. gas; drlg. 2,710 ft.
Mansfield Gas Co.'s No. 14 fee, Lot 10, Sec. 1-4-31 ..... S.D. 200 ft.
Ozark Nat. Gas Co.'s No. 10 Weaver, 660 ft. N, 660 ft. W, SE cor. SE NE, Sec. 27-8-30 ..... Began drlg. June 12; cmtd. 10-in. 30 ft.; drlg. 250 ft.

ST. FRANCIS COUNTY

Brownlee Drlg. Co.'s No. 1 Whitted, 110 ft. N, 110 ft. E, SW cor. SE NW, Sec. 28-4-1 ..... Drlg. 2,786 ft.

UNION COUNTY

S. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 35-16-17 ..... Dry 1,987-2,079 ft.; fishing 2,157 ft.
Marine Oil Co.'s No. 2 Simmons, 300 ft. N, 300 ft. E, SW cor. SE NW, Sec. 10-18-13 ..... Rig up.
Marine Oil Co.'s No. 4-A Thompson, 330 ft. N, 330 ft. W, SE cor. SW NE, Sec. 10-18-13 ..... Derrick.
Marine Oil Co.'s No. 3-B Winn, 330 ft. S, 330 ft. W, NE cor., Sec. 10-18-12 ..... Swbng; making occasional small heads of oil; 5 ft. sand; T.D. 3,559 ft.

Modisette Drlg. Co.'s No. 4 Union Sawmill, 300 ft. W, 300 ft. N, SE cor., Sec. 14-18-14.....Location.
Southern Crude O. P. Co.'s No. 1 Oliver, 330 ft. N, 330 ft. W, SE cor. NE, Sec. 11-18-13.....Dry 3,606 ft; T.D. 3,610 ft.
South El Dorado Oil Co.'s No. 1 Traylor, 330 ft. N, 138 ft. W, SE cor. NW NE, Sec. 9-19-15.....Running sand pump; T.D. 2,172 ft.

VAN BUREN COUNTY

Glenn Kohle et al, trustee's No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13.....S.D. 50 ft.

WASHINGTON COUNTY

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32.....S.D.; W.O. 602 ft.
C. H. Willoughby's No. 1 Jones, Sec. 34-16-30.....Trying to kill wtr. flow 2,150 ft.; hard sand showing oil 1,637-40 ft.
Lincoln Leaseholding, Synd.'s No. 1 Lincoln, Sec. 30-15-32.U.R. 8-in. to T.D. 1,500 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29.Cmtd. 12½-in. 45 ft.; drlg. 425 ft.

WHITE COUNTY

Letona Synd.'s No. 1 Letona, SE cor. NW SW, Sec. 35-9-8.....Pulled 5 3/16-in.; S.D.; W.O.; T.D. 3,650 ft.

YELL COUNTY

Tegmeir & Luckett's No. 1 Falcon, Sec. 36-1-21.....Gas show 4,160 ft.

EAST TEXAS

BOWIE COUNTY

Lee Timberlake's No. 1 Tidwell, 2,800 ft. N, 300 ft. W, SE cor., Jos. Eskell Sur.....Top Nacatoch 975 ft.; top Annona 1,229 ft.; coring chalk 1,599 ft.

CAMP COUNTY

McDonald Bros.'s No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tract, in J. H. Murphy Sur.....Location.
Rogers et al's No. 1 Enfelt, R. M. Montgomery Sur.....T.A. 3,045 ft.

CASS COUNTY

Phillips Pet. Co.'s No. 1 J. R. Olds, 300 ft. N, 170 ft. E, SW cor. J. A. Stephenson Sur.....Derrick.

MARION COUNTY

W. D. Chew's No. 1 Fee, 2,350 ft. W, 1,275 ft. N, SE cor., W. J. Hamilton Sur.....Rig up.
P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur.....Began drlg. June 24; drlg.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur.....S.D. 2,865 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur.....Swedging 2 jts. collapsed 8-in.; arranging cement 6⅝-in. and packer 2,182 ft.

SHELBY COUNTY

Loring Oil Co.'s (formerly Benedum & Trees Oil Co.'s) No. 1 McCann, D. G. Green Sur.....Coring hard lime 4,911 ft.
Chapperall Oil Co.'s No. 2 Holt, Matthew Moore Sur.....S.D. fuel; T.D. 3,300 ft.

MISSISSIPPI

ALCORN COUNTY

Alcorn Pet. Co.'s No. 1 Matthews, SE cor., Sec. 14-2s-7e..Fishing 6-in. and tools 2,392 ft.; T.D. 2,725 ft.

CHICKASAW COUNTY

Hightower & Golson's No. 1 Flemming, NE cor., Sec. 20-13-3.....Fishing 8¼-in. csg. 1,414 ft.

HINDS COUNTY

Oscar Brown's No. 1 Riverside (formerly Hennessee et al's), SE cor. SE SW, Sec. 23-16-5.....Set 12½-in. 30 ft.; S.D. 1,050 ft.
Cane River Oil Co.'s No. 1 Lufkin, Sec. 15-5-1e.....Began drlg. May 28; S.D. waiting on 12½-in. csg.; T.D. 406 ft.
Dome Oil Co.'s No. 1 Elton, NE cor. SE SW, Sec. 5-4-1e..Drlg. 1,387 ft.
Interior Oil Co.'s No. 1 Belhaven Heights, 1,165 ft. W, 614 ft. S, NE cor., Sec. 2-5-1e.....Derrick.
Interior Oil Co.'s (was Progressive Oil Co.'s) No. 1 Mays, C NE NE, Sec. 2-5-1e.....Derrick.
Jackson Oil Co.'s No. 1 Central Cotton Oil Co., NW cor. SW NW, Sec. 3-5-1e.....Derrick.
Jackson O. & G. Co.'s No. 1 Taylor, SE cor. SE, Sec. 35-6-1e.....S.D. igneous rock 3,232 ft.
Love Bros.' (was Love O. & G. Co.'s) No. 1 Bridges-Hilzim, 870 ft. N, 920 ft. W, SE cor., Sec. 35-6-1e...S.D. 240 ft.
Love O. & G. Co.'s No. 1 Gordon, SW cor. SW NW, Sec. 8-5-1e.....Derrick.
Love Pet. Co.'s No. 1 Hutton, 538 ft. S, 291 ft. E, NW cor. NE, Sec. 11-5-1e.....Derrick.
T. G. & F. Co.'s No. 1 Toole, SW NE, Sec. 28-6-1e.....Rig up.
Love Pet. Co.'s (was Love O. & G. Co.'s) No. 2 Mendoza, NE cor. Lot 2, Sec. 12-5-1e.....Derrick.
Ohio Oil Co.'s No. 1 School, SE cor. N½ NE NE, Sec. 16-5-1e.....Derrick.
Mrs. Reeder et al's No. 1 State, SE cor. NW NW, Sec. 25-6-1e.....W.O.; T.D. 2,905 ft.
Tri-State O. & G. Co.'s No. 1 Wilson, SW cor. SE NE, Sec. 23-6-1e.....Derrick.
J. A. Weir et al's No. 1 Holliday & Ross, NW SE, Sec. 8-6-2e.....Rig up.

HUMPHREYS COUNTY

E. S. Steele et al's No. 1 C. B. Box, SE cor. SE NE, Sec. 25-14-4w.....Set 12½-in. 60 ft.; S.D.

LAUDERDALE COUNTY

Lauderdale O. & G. Co.'s No. 1 Lackey, 990 ft. S and E. NW cor. NE, Sec. 2-7-16.....Tested S.W. 3,252 ft.; S.D. 3,420 ft.
Meridian O. & G. Co.'s No. 1 Hauser, Sec. 33-8-18.....S.D.; W.O.; sandy shale 2,826 ft.
J. R. Smith Oil Co.'s No. 1 C. F. Craig, Sec. 2-16-14.....Derrick.

LAFAYETTE COUNTY

Banks-Goode et al's No. 1 May, 113½ rds. S, 26 rds. E, NW cor. SW, Sec. 22-10-1w.....Derrick.

LINCOLN COUNTY

Lincoln O. & G. Co.'s No. 1 Pat Case, NE cor. NE, Sec. 21-3-6.....S.D.; W.O. 2,231 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19.....S.D. 2,912 ft.; baller lost in hole.
Amory Pet. Co.'s No. 1 Hall, Sec. 8-13-19.....Shot 2,402-18 ft.; small show oil; arranging to shoot 2,387-95 ft.
Park Bowser et al's No. 1 Cowart, second hole, Sec. 2-12-19.....S.D. 80 ft.

RANKIN COUNTY

Gulf Ref. Co.'s No. 1 Rainey, NW NW, Sec. 13-5-1e.....Drlg. igneous rock 3,537 ft.
R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e..Drlg. 900 ft.
Interior Oil Co.'s No. 1 Moore, 660 ft. N, 660 ft. W, SE cor. NW NW, Sec. 28-6-2e.....S.D. 900 ft.
Pearl River O. & G. Co.'s No. 1 Littlefield, SE NE, Sec. 12-5-1e.....S.D. waiting on 10-in. csg.; T.D. 824 ft.

WARREN COUNTY

El Dorado Oil Co.'s No. 1 Dornbush, Sec. 8-18-15.....S.D. 2,475 ft.; 2,350 ft. D.S. in hole; W.O.

YALOBUSHA COUNTY

Carter Oil Co. and J. D. Collett's No. 1 Blackmur, 330 ft. S, 990 ft. W, Sec. 14-11-4.....Reaming; T.D. 2,438 ft.

YAZOO COUNTY

Amerada Pet. Corp.'s No. 1 Doherty, SW SW, Sec. 24-12-2.....Drlg. sandy lime 5,133 ft.

ALABAMA

LAMAR COUNTY

Griggs & Knapp's No. 1 Wefel, Sec. 25-12-14.....T.A. 1,740 ft.

LAUDERDALE COUNTY

A. D. Morton et al's No. 10 O'Neal est., Sec. 8-2s-13w...Cmtd. 12½-in. 125 ft.; drlg. hard lime 905 ft.

MARION COUNTY

Hobson et al's No. 1 John Clark, SE. Sec. 29-11-14.....Derrick pattern.

WASHINGTON COUNTY

S. A. Hobson's No. 1 Hobson Bros., Sec. 9-8-2.....S.D.; W.O.; flow at 1,450 ft.
S. A. Hobson's No. 1 Wilson, Sec. 27-7-1.....Fishing baller; T.D. 881 ft.
Oscar Brown's No. 2 Land & Cotton Co., Sec. 25-3-2w..Drlg. 700 ft.

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Bargains in used and rebuilt lathes, shapers, drill presses, pipe machines, milling machines. Five hundred machines in stock. Terms to responsible parties. Write for catalog.
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Two 70-H.P. BRUCE MACBETH Gas Engines, twin cylinder, 275 r.p.m. Excellent condition. Ready for immediate operation. $800 each. f.o.b cars, Ohio. W. C. Hudson, Jr., Brilliant, Ohio.

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FOR SALE—One Ingersoll-Rand compressor, belt driven, 10″x14″. One Ingersoll-Rand Compressor, belt driven, 8″x 4½″ 8″. Two 25 H. P. enclosed Bessemer cased gas engines with water and air pumps complete. Above material all in good usable condition. Address Lock Box 117, Lima, Ohio.

FOR SALE: CHEAP. A complete gasoline driven diamond core drill. W. L. Brennan, Hotel Lee, Tulsa, Okla.

LATHE. Bargain. 30 in. 18 ft. LeBlond. Oil Country, taper att., chuck. Okla. City. Elliott & Stephens Machinery Co., St. Louis, Missouri.

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273 ACRES: Freestone County, Texas, 240 acres Brewster County, Texas, oil and gas permit. Want someone to develop NOW. 2025 Alamo Nat'l Bldg., San Antonio, Texas.

FOR SALE—640 acres good land in Upon County, Texas. Oil possibilities. Price $10 per acre, reserving half of mineral rights. L. A. Johnson, 3804 Oneal St., Greenville, Texas.

$75 WILL BUY 1/320 undivided interest in all oil and gas and other minerals under E½, Section 7, Township 19 south, Range 39 east, Lea County, New Mexico, in Hobbs area, under Prairie Oil & Gas Co. and Shell Petroleum Corp. leases. Ohio Oil Co. has rig standing offsetting this tract on government permit land. Mail cashier check for acreage to Plainview National Bank, Plainview, Tex., for mineral deed. S. E. Curry, Plainview, Tex.

WANTED—Party or parties able to finance drilling proposition. Geology perfect. Structure visible to eye. Shallow 500 to 1,200 feet, 4,000 acres. L. K. Haney, 319 Colorado National Bank Bldg., Denver, Colo.

$8.00 BUYS PART OIL 10 acres Oklahoma County. Big opportunity. Joe Milam, Oil Dept., Oklahoma City, Okla.

BUSINESS OPPORTUNITIES

$10.00 buys deed part oil, 600 feet of drilling well. Joe Milam, Dept. Y-2, Oklahoma City, Okla.

OIL LOCATED before drilling. Geophysical method. Toggodometer Instrument; take pay in oil. No oil, no pay, except traveling and testing expenses. 95 per cent accuracy. O. P. Coffin, Caddo, Tex.

2,000 ACRES on structure northeast Coffey County, Kans., for well. Bartlesville sand about 1,250 feet; first break Mississippi lime 1,450 feet. J. R. Thomas, Petroleum Bldg., Oklahoma City, Okla.

TO HELP FINANCE drilling of several wells where we are getting production of 100 to 600-bbl. wells in 900-foot sand; we will sell a few interests in this acreage with wells completed at reasonable cost. For particulars address P. O. Box 845, Muskogee, Okla. References exchanged.

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HELP WANTED

WANTED—MAN EXPERIENCED AS SUPERINTENDENT of oil and gas development. Must also have experience in leasing and handling oil production and oil field organization. Time must be spent in the field. Submit in first letter education, age, experience, references and salary expected. Good position for competent and experienced person. Must locate at Ashland, Ky.
Lakewood Development Co.,
P.O. Box 150,
Lexington, Ky.

OIL REFINERY Designing Engrs., Const. and Maintenance Engrs., Pipe Line Engrs. and Designers, salary range $250-$500 month, also oil Lab. Chemists and Ch. Engrs., $150-$250. Write or wire, give age, detail exp., references. Interstate Co., Security Bldg., Denver, Colo. Built through 25 years' world-wide service, largest in West.

DRAUGHTSMAN WANTED—Should have had not less than five years' experience with general mechanical equipment, oil well tools preferred. For large company in Oklahoma City. To receive consideration should give complete history of experience and references. Address P. O. Box 641, Oklahoma City, Oklahoma.

ESTABLISHED Mid-Continent oil company wants experienced core drillers immediately. Give age and past experience. Write Box E-227, The Oil and Gas Journal, Tulsa, Okla.

WANTED — EXPERIENCED GAS REGULATOR SALESMAN who is anxious to connect with large, long established line. All replies held strictly confidential. State age and experience, both technical and practical, in first letter. Address Box E-230, The Oil and Gas Journal, Tulsa, Okla.

I AM DESIROUS to make connection with reliable party to sell mineral rights under lands in 13 West Texas counties and 3 New Mexico counties. All good acreage. Wells drilling on some now in Lea County, N. M. Write Box E-228, The Oil and Gas Journal, Tulsa, Okla.

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POSITIONS WANTED

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MAN, age 36, married, wants a permanent position with oil company as lease man or scout. Write Box E-229, The Oil and Gas Journal, Tulsa, Okla.

CHEMICAL ENGINEER, D. Sc., with years of experience in research, process development and construction work along organic-physico-electro-chemical and industrial engineering lines, desires permanent connection with petroleum or natural gas concern, or large machine company manufacturing refinery equipment. Scientifically trained technical man. Speaks English, French, German and Spanish fluently. Address "Engineer," Postoffice H, New York City, N. Y.

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FOR SALE: Undivided interests in five acre lease and drilled well in Zwolle oil field, La. Lease located within 375 yards from producing well. For further information write J. S. Dashko, El Dorado, Ark.

FOR LEASE—25,000 acres Prospective Oil Land in Coahuila, Mexico. Rights confirmed to owner by Mexican Government. S. R. Gonzales, Naranjo 2, Altavista. Tampico, Mexico.

FOR SALE or open for drilling proposition: Block of Leases in Garfield County 6 miles north of Continental's Brown No. 1 producing well. Must be handled at once. Elmer S. and Fox Wood, Inc., 712 Herskowitz Bldg., Oklahoma City, Okla., phone 7-3514.

LEASE. We have 400 acres land for oil leasing. If drilling is done at once will give the lease free. Land well located on Cumberland River in Monroe County, Kentucky, on Merridith Creek Dome. Ed and Martin Bailey, Tompkinsville, Ky.

FOR LEASE—Have several oil and gas leases, 40, 80 and 120-acre tracts, Lea County, New Mexico. Will sublease on royalty basis. Address, F. H. Helmer, 2609 East 35th St., Kansas City, Mo.

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FOR SALE: 40 acre State Lease, Hobbs area, Lea County, New Mexico, $125 per acre. J. W. Newman, 139 North Clark Street, Chicago, Illinois.

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Larger Consumption in Chicago Area

Jobbers' Buying Reported Better and Calls From Distributors' Own Stations. Believed Jobbers Must Restock Shortly

By J. B. Waldo

CHICAGO, June 30. — Saturday and Sunday were days of large consumption of gasoline in the city and surrounding territory. One of the features of the morning's mail with some of the larger distributors were the calls from their own stations for gasoline. The jobbers' buying in the spot market also was better and most of the orders received early in the day called for rush shipments. It is believed that increasing numbers of jobbers are finding their stocks much reduced and are buying now or must shortly. Salesmen who make the territory and are in for the Fourth of July say that jobbers have believed that low prices would prevail during the remainder of the season and have held back from buying as much as possible professing to reduce their own stocks. With a continuance of larger consumption they will begin to buy on a more liberal scale very shortly is the belief of these salesmen. There are some jobbers who reported today on inquiries that they were not in the market as yet claiming to be supplied up to the middle or latter part of July. The situation as regards jobbers' stocks is not clear but in a general way the jobber with only an average amount of storage is believed to be carrying little gasoline while those with larger storage are still supplied for their needs for some weeks.

Price Situation

The price situation here was little changed but there is less of the 6-cent U. S. Motor gasoline available and most spot sellers are trying to sell at slightly higher prices asking 6⅛ or 6¼ cents but some of them would still sell at 6 cents rather than lose the order. The major refiners are still holding for 6½ cents Group 3 for their U. S. Motor gasoline are relying on their contract shipments to keep their stocks in fairly good shape but all would like to increase their sales with a fair proportion of spot orders. A considerable volume of business is expected during the next three days for gasoline to replace the consumption over the three-day holiday which covers the latter part of this week.

There was very little doing in any other line than gasoline. Kerosene was dull and a drug on the market, domestic furnace oils quiet but fairly firm as to prices and the heavy fuel oils moving slowly, few inquiries and little real business. Prices quoted on the heavy industrial fuel oils today were fractionally lower than a week ago. Lubricating oils were very quiet, no real movement at all today.

The sales executive in charge of sales of one of the large refinery organizations stated in conversation last week, that they had reduced their runs to a figure which was just about 25 per cent of the regular capacity of the plant, and remarked that: "If they had to store anything, they had much rather store crude than gasoline." Although an old time oil man once said that crude might go into a tank as 32 gravity, it would never come out any better than 30 gravity, still it came out good crude and salable at the price for the gravity, while gasoline does not increase in volume nor improve in quality with storing over any period. Asked if other refiners had adopted the same drastic method to avoid accumulation of stock, he said that none had done so, so far as he knew but understood that there would be quite a general reduction in crude runs to stills and that several smaller plants were closing down until the market improved so that they could run at a profit.

The report of the substantial decrease in gasoline stocks reported for the week ending June 21 was one of the most cheerful pieces of trade news that has come into this market for some time.

The buying last week was more free, there was more demand for quick deliveries. The feeling was better but the actual increase in the volume of gasoline moved was not so large as might have been expected. The buying was mostly from the smaller jobbers and when the larger jobbers came to market it was usually to replace their recent sales. The buying on contracts was fairly good but there is some difficulty in getting the full quantity and some of the refiners are under some suspicion that some of the contract buyers are taking in a few cars bought in the spot market at considerable savings in price although the quality of the material may be of less value. But all in all there was more interest shown by the jobbers in the market and if they did not buy largely they bought with more freedom what they did buy.

Price Situation

There was no real change in the prices at which sales were made. For the most part the range was from 6 to 6¼ cents with some occasional prices made of 5⅞ cents more in the early part of the week than at the close. Some of the refiners held for 6¼, but had to meet 6⅛ cents in some cases but stated that they had not sold any gasoline at less than 6⅛ cents. On the other hand the brokers found that 6 cents was about the best price that they could secure although each one managed to squeeze in a few sales at an eighth more. But the price range for U. S. Motor was very limited. Some offerings were made of 6 cents over July but were not very freely taken as the jobbers did not seem to think that they would have any trouble in buying at that price after the opening of next month. There has been some buying for July but if there should be a strengthened market by some means such as a real reduction in stocks and a stronger refinery market there are probably a good many jobbers who would try to buy at the prices which are at present offered to them by refiners. But refiners have been so persistent in their offerings of gasoline at very low prices, below the cost of production in fact, that the buyers believe that the refiner will be back again after the Fourth of July with new offerings and that the present prices will still hold.

Antiknock Gasoline

The demand for the antiknock gasolines and particularly for the Ethyl product, continues to be a feature of the situation. The tenacity with which the Ethyl Co. insists that all its dealers maintain the schedule for service and tank wagon prices in their vicinity, is believed by some of the prominent oil men to be a very potent factor in the present stability of the tank wagon situation. Watch is kept by special agents of the prices at which the jobbers sell, not only Ethyl but the regular product and any variation is at once reported to the refinery who supplies the jobber with his Ethyl and that refiner must either see to it, that the jobber restores the prices if he has made any cuts and if not, that jobber is deprived of his supply of Ethyl Gasoline. So long as there is such demand for the Ethyl Gasoline from the public most jobbers will hesitate to give up the sale of that material. A rather rough estimate of the sales of Ethyl Gasoline indicate that something like 10 per cent of the total volume of gasoline sold is Ethyl. This may seem high but an oil man driving from Minneapolis to Madison, Wis., made a check of the gasoline pumps and found that out of every 100 pumps which he checked 34 were for the sale of Ethyl Gasoline.

According to information given, the export association will do no buying during July. A major refiner commenting on this statement said that it simply meant that all of the North Texas refiners would be back in the market with offerings of U. S. Motor gasoline. Some inquiries have been received here regarding supplies of export gasoline from other sources than the export organization. It is understood that a leading buying account for England has been placed with a Mid-Continent oil man who has bought this year several cargoes of gasoline for export. Apparently some of the foreign buyers believe that they can do better for themselves by buying through their own agent in this country, than by being sold by the sales representatives of the export association. The buying for export does not seem to have any real effect on the local situation unless it be that less U. S. Motor gasoline is being run and offered. Prices for the higher gravities are decidedly easy in tone and little demand is found for these grades. The 60-62 400 endpoint is being sold freely to jobbers at 6⅛ cents and some are taking advantage of the low price and stocking with it instead of U. S. Motor. The 64-66 375 is going to the trade at around 7⅛ cents. There is about the usual demand here for cars of natural gasoline for blending with the southwestern naphthas.

Kerosene

Kerosene is still very dull and prices are unchanged at around 3½ cents. A good 41-43 article can be had direct from refiners at that price. One of the large local refiners asked some of the brokers if they could not move some kerosene for them and in most instances were told that the material was a drug on the market.

Aside from gasoline there is as much if not more real business being done in furnace oils than in any other product. The greatest activity is in the making of contracts for delivery of specified quantities of various domestic furnace oils over the coming season. In some cases a price range is made but in most of these contracts the price is left to be determined by the quotations in some established publication. Some of these prices call for a figure one-fourth cent below the low quotation and some of them call for an eighth cent above the high according to the desirability of the material but most of them are based on the actual average as shown on the date of issue. In addition to these contracts which are being made at the present time, there is actually considerable buying of various grades of domestic furnace oil for storage. Those taking advantage of the present prices at which they can buy material to stock up are usually the larger concerns. One of these took in five cars of a very good distillate at 2⅝ cents. Another distributor in this city has stated that he has bought for storage 25 cars of straightrun gas oil at the price of .0197 cent. Most of these buyers have a steady trade and will use a small part of the oil taken in now before the beginning of the fall season. The actual consumption is small right now, probably at its low for the year. But there are some industries who use small deliveries of gas oil or other light fuel the year round and there are many buildings in which it is necessary that some head of steam be always available. There is little or no change in prices in the domestic furnace oils for immediate movement.

Fuel Oils

The demand for the heavy industrial fuel oils is slackening with the approach of the vacation season. Many industries are closing down and they seem less certain as to when they will resume than is usually the case. There is little activity among the industries which are usually among the largest users of fuel oil. The building material industry, according to a recent survey is operating at about 30 per cent of normal. The Pullman Co., for example, is closed down with the possible exception that some small departments are working on replacement parts. Several of the concerns in the steel line are closed down entirely and the big steel mills are operating at about 50 per cent of capacity. The fuel oil trade here believe that there will be a gradual falling off in the consumption over the period from the middle of July until say the latter part of August and then some slight recovery in the industrial demand may be expected. It may come sooner and larger than anticipated but the trade here is not counting on it strongly. Then will come the demand for oil for heating which will help the industrial demand but they realize that there is something the matter with business the world over and it will take some time for a general adjustment to be made to the new conditions especially as the latter are only dimly seen and not understood.

The price situation is a little lower both for fuel oil and for industrial gas oil. The latter is not in active demand and is selling slowly with competition developing some very low prices. Bids of 2⅛ cents have been too high owing to direct bids of 2 cents and some sales have been reported at slightly less than 2 cents although the specifications are not known.

Good 18-22 fuel oil can be bought for 50 cents a barrel, Group 3, and at a little less if the specifications are not too strict. The local refineries will sell at that price their 18-22 or equivalent grade. From Oklahoma some good fuel oil is offered at 47½ cents which might not fill all specifications but is still a very useful oil.

Bright Stocks

The bright stock situation seems no nearer a solution. Pennsylvania bright stocks have been offered here at 26 cents without a buyer and there seems little doubt that an order would be accepted with a 25-cent price attached. Mid-Continent bright stocks are still held at 32 cents but sales are reported to have been made between refiners at 28 cents. There is little movement and a light consumption, so light in fact that some of the compounders who contracted for what they expected would be one-half their requirements now state that they will not need any more bright stocks this season. The decreased industrial activity has made the demand for industrial lubricants much smaller than it was up to a month ago. Motor oils are being consumed but the demand from jobbers is light right now.

Major distributors found it necessary to correct conditions in Terre Haute, Ind., which they did by increasing the service station price 3 cents and not changing the tank wagon price. The new prices including the tax are tank wagon, 19 cents, service station, 17 cents. There has been comparatively little price cutting which some attribute to the action of the Ethyl Gasoline Corp. in insisting that those dealers who sell its product must maintain the price on their regular as well as on their Ethyl Gasoline.

East Coast Gasoline Outlook Better

Increasing Consumption With Lowering of Stocks Help Situation. Efforts Being Made to Stabilize Conditions

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, June 30. — Increasing consumption and improvement in the statistical position of the market have combined to bring about some improvement in sentiment with respect to gasoline this week, but the remainder of the eastern refined products market is still in weak position, with further cuts in lub oil prices noted. Although the gasoline position in the East Coast area is fairly sound, continued softness in the Mid-Continent serves to dampen enthusiasm among operators in this area.

Gasoline inventories for the country as a whole recorded their sharpest decline in more than eight months in the week ended June 21, American Petroleum Institute reports for the week showing a drop of 1,739,000 bbls. in refinery holdings for the period. Simultaneously with announcement of this substantial decline in stocks, the institute made public a revision of its figures for the previous week, the adjustment resulting in a decrease of more than 1,000,000 bbls. instead of the less than 400,000-bbl. decline previously reported for that week, and bringing the total reduction in domestic gasoline stocks for the two weeks ended June 21 to 2,792,000 bbls. Notwithstanding these declines, however, holdings of 50,465,000 bbls. as of June 21 are still considered as being widely out of line with existing outlets, both domestic and foreign.

Leading interests in the petroleum industry in the East are directing their energies toward maintenance of stable gasoline markets over the summer season, and developments thus far indicate that a fair measure of success will attend these efforts.

Tank Car Gasoline

The market continues held at a range of 9 to 10 cents per gallon for U. S. Motor Gasoline at principal East Coast refinery terminals, with a good movement recorded. Weather conditions during the week have been ideal for heavy consumption, and a triple holiday over the coming week-end, due to the Fourth of July holidays, is expected to witness another substantial increase in volume.

Jobbers have been in the market in a large way during the past week and tank car movement has continued heavy. Distributors generally are bullish on the outlook and are keeping storage full and considerable quantities of motor fuel rolling at all times to replenish their tankage as fast as stocks are drawn for delivery to retail dealers.

While some interests are talking a higher wholesale market by the middle of July, leading factors in the tank car market in this area have shown no indication of pending price mark-ups, and it is now believed that the present minimum price of 9 cents will be maintained until the market position definitely indicates the probability of successful maintenance of a higher level.

California gasolines, for which special antiknock qualities are claimed, are selling at a premium of a half to 1 cent per gallon at many points in East Coast territory.

Refiners report a considerable increase in tank car movement of premium motor fuels, and sales of the extra quality product thus far in the year are substantially in excess of those for comparable periods of previous years.

While refiners have not yet completed their sales totals for the first half of 1930, reports from principal factors indicate that totals will show a gratifying improvement over 1929, with new records attained in many instances.

Tank Wagon Gasoline

There were no general revisions in tank wagon or service station prices throughout the East Coast territory during the week under review. It is reported that a 1-cent advance in Standard of New Jersey's territory is imminent, but this rumor has been prevalent for the past month or more.

Sales are holding up exceptionally well, the hot spell which the eastern area has undergone during the past week materially stimulating sales. Marketers report that their gallonage for the first half of 1930 has shown substantial improvement over the first six months of 1929 on both U. S. Motor and premium gasolines. While individual marketers have shown a falling-off in business here and there, the aggregate for the area is materially ahead of last year's totals for the corresponding months.

There is still some price cutting at independent retail stations. Gasoline "bootlegging" has become a reality through the operations of some small interests which have been bringing motor fuel into the metropolitan area from New Jersey refineries and retailing it here without the "formality" of filing a report to the State or paying the state tax of 2 cents per gallon. So-called "independent" gasolines, marketed legitimately from the tax standpoint, can be bought at about 2 cents per gallon under the general market level, however.

Kerosene

There has been a slight pick-up in kerosene business in the tank car division during the week, marketers beginning to get some demand for burning oil from the vacation areas. The market is still in easy position, however, and the posted quotation of 7¼ cents per gallon for 41-43 water white in tank car lots is being freely shaded in many directions.

Tank wagon kerosene demand has been quiet along routine lines during the week, with no price changes recorded for the period.

Lubs

It is still very much a buyers' market on cylinder oils and further sharp price breaks developed during the week. Current quotations are 1 to 4 cents per gallon under those in effect last week, with no indication as yet that the bottom has been reached.

On 600 steam refined the local market is down to 22 cents, a decline of 3 cents per gallon for the week, with 630 and 650 showing similar losses at 24 and 28 cents per gallon, respectively. The spot market for 600 Pennsylvania flash and 630 flash is off 2 cents per gallon at 33 and 36 cents per gallon, respectively, with indications that these prices can be shaded further. Warren "E" 600 is 1 cent lower at 32 cents per gallon, and a corresponding drop to 31 cents has been shown by Oil City "E" 600. The market for bright stocks is 4 cents per gallon lower at 37 cents for the light and 35 cents for the dark, and it is probable that these prices could be beaten.

Cylinder stocks have dropped so rapidly during the past month and a half that domestic consuming manufacturers have no confidence in the market position. Consequently, operations continue on a greatly curtailed basis.

Red and pale oils are showing easiness, in sympathy with the lower market for other oils, but refiners have thus far made no changes on these grades.

Paraffin Wax

The market has again eased off under plentiful offerings and restricted demand. Spot 120-122 a.m.p. fully refined is unchanged at 2⅞ cents, but the market for 125-127 a.m.p. is off an eighth cent at 3¼ cents per pound, with 130-132 a.m.p. down a similar amount at 3⅝ cents per pound and 135-137 a.m.p. a quarter cent lower at 4⅝ cents.

Domestic buying is still limited to small amounts for prompt and nearby shipment, and there is very little interest manifested in the later positions at any price. Refiners, however, believe that curtailment measures undertaken in Pennsylvania will cut production, and hope for a better market by late summer or early fall. Under these conditions, they are not anxious to book ahead at current going prices.

Fuel Oil

Refiners continue to quote $1.15 per barrel for bunker "C" in bulk at refinery terminals, with a good movement in evidence. Contract deliveries to the steamship lines still account for a large part of the movement locally, with domestic sales rather sluggish.

Reports from the Gulf indicate that the market has sagged a little at that point, but this condition has not been reflected in any general weakening here, although two cargoes were reported at an East Coast point a few weeks ago under the posted price basis.

Gas Oil

Routine movement is again in evidence in this division of the market with seasonal quiet shown. Leading factors continue to maintain a posted price of 5¼ cents per gallon for 28 plus oil at refineries, but business is going through at concessions of a quarter to a half cent per gallon.

Refiners are reported planning further curtailment of operations at East Coast plants, which should insure a slowing-down of the seasonal additions to surplus storage.

Diesel Oil

Principal sellers are adhering to the posted price of $2 per barrel in bulk at refinery terminals, and business is holding up well at that figure.

Sales of Diesel oil for the first six months of the year recorded substantial increases over those for the comparable months of 1929, leading factors report, and the outlook for the balance of the year is no less favorable.

Gulf Export Market

A cargo of 8,000 tons of 64-66 was reported booked during the week at association prices for shipment to France late July or early August. The cargo was for the French marketing subsidiary of a large American company and was booked option of Gulf or Philadelphia shipment.

A part cargo of 3,000 to 4,000 tons of 64-66 was booked at the Gulf for late July or early August shipment to Havre. A British company was the buyer and it was reported that the motor fuel was purchased in the field under export posted prices.

An inquiry for 3,000 tons of 64-66 for July-August shipment was in the market, c.i.f. Antwerp, but up to the time of writing this cargo had not been placed.

A cargo of Panuco crude was reported booked for export during the week at 54 cents per barrel, plus taxes, although the general market quotation was 1 cent per barrel over this figure. One operator reported that he had been offered 1,000,000 bbls. of Panuco crude for delivery over the balance of 1930 at 58 cents per barrel, plus taxes.

There were no export fixtures of California gasoline reported in the open market during the week.

Export circles here are still stirred over reports of a pending price reduction in the posted schedule at the Gulf, but nothing tangible has developed in this connection. A number of meetings of the export group have been reported during the closing half of June, but it is believed that these were gatherings of the Mid-Continent committee and other groups, only one meeting of the full membership having been known to have been held during this time. It is rumored in the outside market that members of the export group are being polled regarding a downward revision in the Gulf posted schedule for gasoline.

Petroleum Exports

Export volume fell off considerably in the local market during the week, and with new business also of small moment, the market was in rather dull position throughout the period. Competition is keen on export inquiries, and business is being taken at cut prices on a number of products, notably cylinder oils.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	June 21	June 14	June 7
Gasoline	590,000	130,000	50,000
Naphtha	105,000	535,000	335,000
Kerosene	12,000	33,000	255,000
Fuel oil	10,000	109,000	130,000
Lubricating oil	895,000	908,000	2,100,000
Petroleum, refined	1,040,000	2,326,000	650,000
	Pounds		
Petrolatum	54,000	35,000	.....
Paraffin wax	1,065,000	1,611,000	640,000
Refined	.....	.....	5,000
Scale	302,000	223,000	562,00
Lubricating grease	725,000	1,603,000	430,000

Reports from European consuming markets continue of a bearish nature. European distributors are reporting smaller sales than at this time last year, and purchases in this market are naturally reflecting this condition. In addition, Russia and Rumania are presenting sharper competition to American oil products, and American exporters are being called upon to meet some low-priced offerings from these sources in holding their export volume. The wisdom of the large integrated companies in establishing foreign marketing subsidiaries is fully demonstrated in a market such as the present.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended June 21 totaled 1,896,000 bbls., a daily average of 270,857 bbls., compared with 2,035,000 bbls., a daily average of 290,714 bbls. for the week ended June 14 and a daily average of 277,286 bbls. for the four weeks ended June 21. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	369,000
Boston	130,000
New York	883,000
Philadelphia	267,000
Others	93,000
Total	1,742,000
Daily average	248,857
At Gulf Coast ports—	
New Orleans and Baton Rouge	114,000
Tampa	40,000
Total	154,000
Daily average	22,000
At all United States ports—	
Total	1,896,000
Daily average	270,857
Daily average four weeks	277,286

Distribution of total imports is as follows:

Crude	1,257,000
Gasoline	115,000
Fuel oil	524,000

Importing companies now have their import schedules for the summer season in shape, and it is expected that movement of gasoline will be regulated in conformity with market outlets. Fuel oil imports at Gulf ports, it is understood, are beginning to be felt by domestic refiners, and have been accompanied by some easing off in the position of the open market,

(Continued on Page 150)

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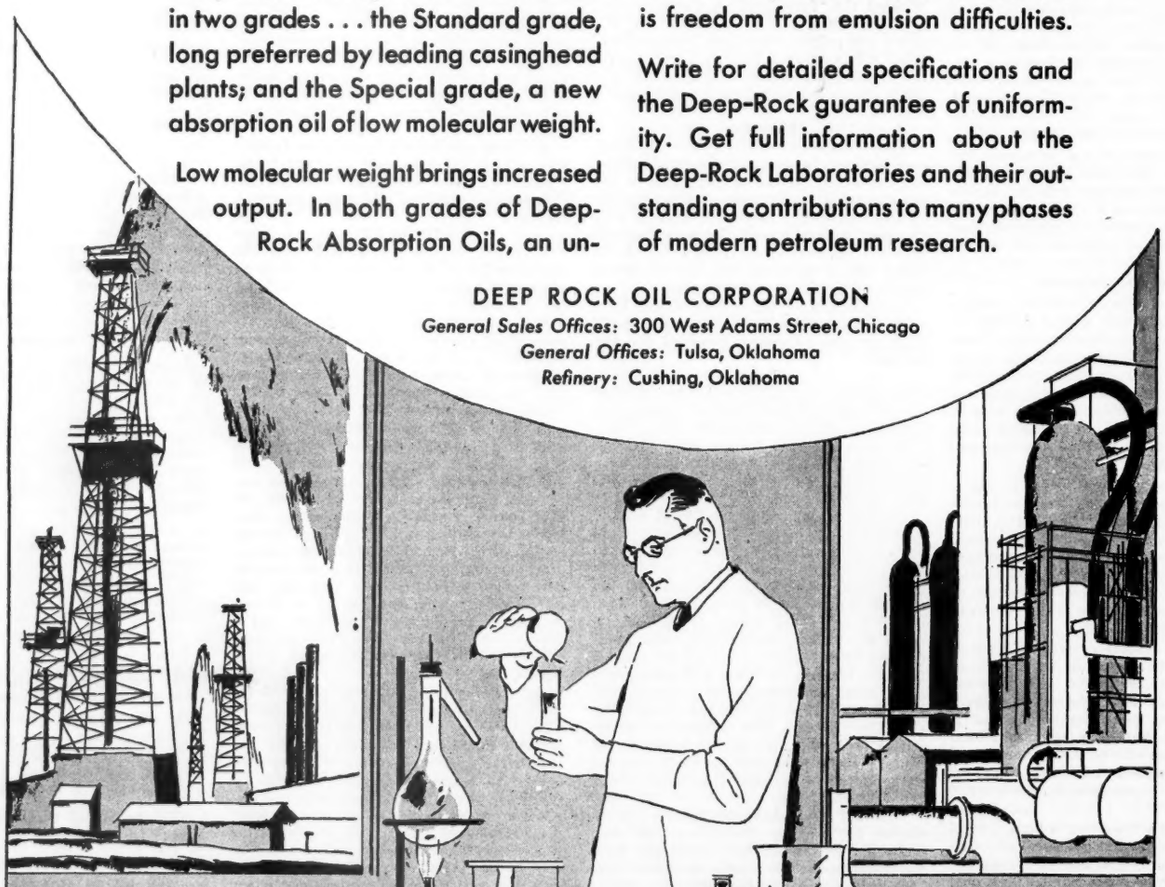

DEEP ROCK OIL CORPORATION

General Sales Offices: 300 West Adams Street, Chicago

General Offices: Tulsa, Oklahoma

Refinery: Cushing, Oklahoma

Natural Gasoline Manufacture

List Distributors And Producers of New Liquefied Gas

This list of producers and distributors of liquefied petroleum gases was compiled from data submitted to the Bureau of Mines, Department of Commerce,† in connection with the recent survey of the marketed production of these gases. The first part of the list includes the companies which, wholly or in part, market liquefied petroleum gases of their own manufacture while the second part includes the companies which market gases purchased from one or more of the manufacturing companies listed.

Part I—Producers

Bradford Gasoline Co., Bradford, Pa. (See the Nugas Corp., under distributors, for other data.)

Carbide & Carbon Chemicals Corp., Carbide & Carbon Bldg., 30 East 42nd St., New York, N. Y. Trade name—"Pyrofax." Sale of product started in 1924. Territory served: All states. Branch offices in Boston, Mass., Chicago, Ill., Cleveland, Ohio, and San Francisco, Calif.

Hope Construction & Refining Co., 545 William Penn Way, Pittsburgh, Pa. Trade name—"Hope Bu-Tane." Sale of product started January, 1920. Territory served: Pennsylvania, Ohio, New York, West Virginia, Indiana, Illinois, Minnesota, Michigan and New Jersey.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex. Trade name—"Stargas." Sale of product started July 1, 1929. Territory served: Texas.

The Mars Co., Oil City, Pa. Trade name: None. Sale of product started May 15, 1928. Territory served: Sells to distributors operating in eastern states.

Philfuels Co., 7-101 General Motors Bldg., Detroit, Mich. Trade name—"Philgas," "Philfuel." Sale of product started in 1927. Territory served: Connecticut, Florida, Indiana, Iowa, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey, New York, North Carolina, Ohio, Rhode Island, South Dakota, Virginia, Wisconsin and Ontario, Canada.

Shell Oil Co., Shell Building, San

(Continued on Page 153)

†Compiled by E. B. Swanson, Acting Chief Economist, Division of Petroleum Economics, Bureau of Mines, June 24, 1930.

ASSOCIATION COMMITTEE ATTENDS A.S.T.M. MEET

Emby Kay, general superintendent of gasoline plants for the Skelly Oil Co.; S. S. Smith, general superintendent of plants for the Shell Petroleum Corp.; Dr. E. R. Lederer, vice president of the Texas Pacific Coal & Oil Co.; Ray Miller, secretary of the Natural Gasoline Association of America; Dr. G. G. Brown, of the University of Michigan; F. E. Rice, vice president, and R. C. Alden of Phillips Petroleum Co., attended the meetings of the D-2 committee of the American Society for Testing Materials in Atlantic City June 23 to 27, in the interests of suggested improved methods of testing natural gasoline.

The committee also entered into the discussion of changes which the Government has suggested in U. S. Motor specifications which may change the amount of ordinary natural gasoline which may be contained in the finished blend. More specifically, the discussion was focused on the proposal of the Government to establish a 10-pound Reid vapor test specification on all gasoline purchased by its agencies which in effect will mean a greater share of the gasoline sold on the open market would have to pass this test.

Construction and Operation

GAS PURCHASES*

In any manufacturing industry the utmost of consideration is given to the purchases of raw material. In many businesses the character of the buying of raw materials often is reflected on the profit or loss side of the ledger. In the natural gasoline industry, where the cost of the raw material represents the largest single manufacturing cost, proper control of gas purchases is of paramount importance. There is yet another reason for this importance. Neither the gas nor gasoline in the gas can be seen as such. For that reason dependence must be placed upon instruments and equipment to measure and evaluate the gas and gasoline contained in the gas.

In a previous article, gas purchase contracts were discussed. Various values placed upon gas, based upon the recoverable gasoline contained in the gas. The cost of processing two and a half gallons of gas is not a great deal more than the cost of treating one gallon of gas, hence the difference in "royalty" paid for the different gases. That difference is determined by a "physical test." There are three methods of making such tests approved by the Natural Gas Association of America and by the Natural Gasoline Association of America. They are the oil absorption, compression, and charcoal processes. These processes are described in the circular of the Natural Gas Association of America, Code No. 1.

The object of each method is to determine the volume of recoverable gasoline in each 1,000 cubic feet of gas. The methods are popularly used in the order named—compression, charcoal, and oil absorption. So unpopular is the last that the writer knows of no case where it was employed as a method of making settlement tests during the last three or four years. The difficulties in the field did not justify this method of testing since the results could be equaled by other, more simple methods. Not only does the oil absorption test entail a great deal of unnecessary time and inconvenience in handling the oil and apparatus, particularly in cold weather, but results are often difficult to duplicate.

While the gas contract specifies the kind of test to be used, the charcoal method is not always used when permitted. It is used most generally on lean gas, and more especially on gas under a gallon content. On richer gas the yield can easily be duplicated with an efficient compression testing unit.

Compression Method

The compression method was the first used in the industry and is today by far the most widely used. It is simple, most easily checked, and with it a test may more intelligently be witnessed by one not widely versed in the gasoline arts. The gas is measured on a corrected temperature basis, the gasoline is recovered "here and now" on the lease, and the yield determined, without any of the "frills" attached to the other methods. Two "check tests" are generally made, regardless of which method is used, but if compression is used all the tests can be made in less time than one charcoal test.

Tests are made by the buyer of the gas, and they may be, and generally are, witnessed by the seller. The buyer's equipment is used and his tests govern if his equipment is not subject to criticism. If the seller makes check tests they are made simply to be sure the buyer's tests represent a fair average of the gasoline content. Disputes between testers are practically unknown. Thousands of tests are made each year and seldom do adjustments have to be made. The whole matter of gasoline content is settled in the field by both parties and the results certified by both representatives for office use.

Tests for gasoline content made quarterly cannot be expected to show true values. It is believed that they represent fairly a cross-section of the character of the gas taken by the buyer. While tests are made more often in flush fields if, as, and when producing conditions are radically changed, the quarterly tests, by one of the methods mentioned, are and have been standard practice in the industry. They represent the spirit of give and take that has characterized the oil business in general and the natural gasoline business in particular, from inception.

*Seventeenth of a series of articles explaining the inner workings of a natural gasoline organization. The series was prepared by an operator actively engaged in all phases of construction and operation.

PREPARE CODE COVERING GAS-MASK CANISTER USE

A committee functioning under the procedure of the American Standards Association and with the sponsorship of the National Safety Council has prepared a code of colors for gas-mask canisters. When gas-mask canisters are properly marked and labeled it is possible to determine definitely at a glance the contents of the canister and the protection which it affords. The code was designed to eliminate any confusion in the markings of the different manufacturers. By standardizing on the color markings it is a simple matter for a worker using a mask to know which should be used in the atmosphere in which he must have protection.

Colors

According to the code each gas-mask canister shall be given a distinctive color in accordance with the following:

A. Acid, white.
B. Organic vapor, black.
C. Ammonia, green.
D. Carbon monoxide, blue.
E. Acid and organic vapors, yellow.
F. Acid and organic vapors and ammonia, brown.
G. Dusts, smokes, mists in combination with any of the above gases, one-half inch contrasting black or white stripe.
H. All of the above gases, red. Filters are included in this canister, but stripes to indicate them are unnecessary.
I. Other special gases, color to be assigned.

Note—This code was formulated through the co-operation of the National Safety Council, United States Bureau of Mines, and American Standards Association. These agencies will be glad to consider requests for additional color assignments for other possible gases or combinations if such gases assume importance in industry.

All colors used shall be such as to be clearly identified by the user and clearly distinguishable one from another. When more than one color is used there shall be a decided contrast between them.

The color coatings used shall offer a high degree of resistance to chipping, scaling, peeling, blistering, fading, and to the effects of chemical fumes, smokes, gases, moisture, and dusts in the ordinary atmospheres to which they may be exposed under normal conditions of storage and usage.

Other Markings

On each canister shall appear, in bold letters, a brief statement to show the purpose of the canister, for example:

For use only in .....
(Name of gas or gases)

For use only in .....and in dusts
(Name of gas or gases)

For use in air containing any gas or smoke.

For this purpose it is permissible to attach a metal plate bearing the proper inscription in raised or other distinct letters, or to stamp the statement into the metal of the canister with a male and female die. The statement may be marked with decalcomania, stenciled with paint, or paper labels may be used. The latter should be attached with heat-proof cement.

All of the markings specified above should be placed on the most conspicuous surface or surfaces of the canister.

Who's Who
IN NATURAL GASOLINE MANUFACTURE

CONTINENTAL OIL CO.

The Continental Oil Co., although it has been active in new plant construction over the past two or three years, continues to operate several old plants with a settled production in Oklahoma, Texas and Colorado.

The present Continental company is a merger of the Marland Oil Co. and the Continental Oil Co. which had its headquarters in Denver. The latter company previous to the merger acquired two plants formerly owned by a subsidiary of the Union Oil Co. of California in Colorado and these plants are still operated. When the Continental acquired the Texhoma Oil & Refining Co. of Wichita Falls, Tex., plants were also acquired in Texas. The former Marland company had plants in Oklahoma and most of these plants are still operated.

Headquarters of the natural gasoline department are located at the general offices in Ponca City, Okla. J. H. Hill is general superintendent of the department.

The Continental company has several refineries, two of which are located in Oklahoma and one in Texas, so that they are convenient to the gasoline plants. A refinery is also to be constructed at Denver which, with a plant in Wyoming, can secure natural gasoline from the Colorado plants.

Following is a list of the company's plants:

Location in field—	Daily capacity
SE, Sec. 33-25n-2e, Oklahoma	15,000
Hubbard Field, Okla., SE cor. SW, Sec. 1-26n-2w	3,000
S½ NE, Sec. 20, Blk. Y, Hutchinson County, Tex.*	....
Four miles southeast Burkburnett, Tex., Wichita County, Winters Survey	1,500
Four miles south Electra, Tex., Sec. 34, Blk. B-5, H.&T.R.R. Survey	1,000
Seven miles east, 3 miles south Electra, S.A.&M.G. Survey No. 5	1,000
NW, Sec. 30-8n-68w, 15 miles north Fort Collins, Colo.	1,500
NE, Sec. 6-9n-65w, 7½ miles west Wellington, Colo.	5,000
Thomas Field, Okla., SW, Sec. 15-25n-2w	3,000

*Plant shut down.

Brief Items for Petroleum Refiners

TESTIMONY BEING TAKEN IN SOCONY-VACUUM CASE

NEW YORK, July 1.—Testimony designed to show that consolidation of the Standard Oil Co. of New York and the Vacuum Oil Co. will in no sense create a monopoly or lessen competition in the American oil industry was introduced at the opening of the hearing in Federal Court here of the Department of Justice's suit to prevent merger of the two companies. Evidence introduced by Socony showed that of the total crude petroleum production of the entire United States Standard of New York and subsidiaries control approximately 4.4 per cent and Vacuum approximately one-tenth of 1 per cent.

Vacuum during 1929, the testimony showed, sold 2,498,025 bbls. of gasoline in the United States, representing eight-tenths of 1 per cent of total sales, and Standard of New York sold 26,315,616 bbls. or 8.1 per cent. In Socony territory, embracing New York and New England, the New York company distributed only 23 per cent of the total petroleum products sold in that area last year with total sales amounting to 29,416,000 bbls. in that territory. Vacuum, in the same year, sold in this territory only 1,089,156 bbls. of petroleum products. In 1909, the testimony showed, Standard of New York handled close to 92 per cent of all petroleum products sold in the same territory.

The taking of testimony in the New York hearing will extend well through the summer season with attorneys for Vacuum and Standard of New York endeavoring to show that the proposed merger due to changed economic conditions within the oil industry will not create a monopoly or result in restraint of trade and the Government contending that the consolidation will be in direct violation of the dissolution decree of 1911.

SEEK TEMPORARY INJUNCTION

NEW YORK, July 1.—Counsel for a number of the principal oil marketing companies in the East have filed applications for a permanent injunction against the Connecticut motor oil statute, which became effective last year, on the ground of unconstitutionality.

Pending hearings on the appeal for a permanent injunction, the oil companies are seeking a temporary injunction to restrain the governor, motor vehicles commissioner and state's attorneys from enforcing the law, which provides that all motor oil sold in the State of Connecticut must be "equal to or better than United States Government specifications," and so labeled on the container.

Plaintiffs in the injunction proceedings include Atlantic Refining Co., Beacon Oil Co., Gulf Refining Co., Shell Eastern Petroleum Products, Sinclair Consolidated Oil Corp., Standard Oil Co. of New York, Sun Oil Co., Tide Water Oil Sales Corp., The Texas Company, Mexican Petroleum Co. and Vacuum Oil Co.

DISMANTLE LEWIS UNITS

The Atlantic Refining Co. is dismantling the last of its old Lewis cracking units and a portion of the ground will be utilized for the erection of four new DeFlorez vapor phase units. The new units will have a daily capacity of 1,000 bbls. of gasoline each and will be completed by January 1.

These units are being added for the purpose of increasing the antiknock value of the gasoline derived from the crude. The company has maintained a policy of supplying a high antiknock value in its regular fuel as well as on its Ethyl Gasoline.

A.P.I. DIRECTORS AUTHORIZE SURVEY ON GASOLINE "WORKING STOCK"

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, June 30.—Directors of the American Petroleum Institute, meeting here this week, authorized a survey of the industry designed to develop definite data on the amount of necessary gasoline "working stock" required by each refining company as the first step in what appears to be intended as a definite move to secure co-operative curtailment of refining operations, in line with the recent recommendations of the Federal Oil Conservation Board. The directors expect that through consolidation of the reports on "working stock" it will be possible to establish total gasoline working stocks required and thus ascertain the minimum amount of such stocks essential to the proper operation of the industry's business. Completion of this work will give the industry definite data on which a curtailment policy may be operated, and it is believed that with figures of this sort available, the curtailment movement will receive new impetus among refiners.

The directors approved an interpretation of Rule 4, National Code of Practices for Marketing Refined Petroleum Products, applying to contracts. The rule in question appears in the code as follows: "No refiner, distributor, jobber or wholesaler shall knowingly induce, attempt to induce, or assist a party to break an existing written contract for the sale of petroleum products between that party and another." The board interprets this rule as follows: "Companies may buy or lease service stations notwithstanding occupying dealers have sales contracts with other companies; provided either

"1. The contracts with existing suppliers are performed according to their terms; or

"2. Proper termination notices are given according to the terms of the sales contracts."

W. R. Boyd, executive vice president, was authorized by the board to prepare the list of members for the 1930 Board of Councillors, which nominates candidates for election as directors. The directors voted that the number of councillors in the supply group be reduced and that only members representative of supply companies contributing $200 or more to the institute's maintenance fund should be eligible as councillors for the supply group.

The Special Committee on Highway Tours, appointed to undertake to raise $50,000 within the petroleum industry as a contribution toward financing road inspection tours for 300 foreign government officials attending the sixth International Road Congress at Washington, D. C., in October, reported that to date 36 oil companies have contributed $24,475 to this fund. It was explained that the road tours will be conducted under the auspices

(Continued on Page 155)

ARRANGE REFINERY PROGRAM

In a meeting of the refinery program committee of the American Petroleum Institute, June 25, in Atlantic City it was decided to divide the papers to be delivered in Chicago during the next annual meeting into four groups. Each group will be read and the subject matter opened for discussion during the respective session and one session each will be held for subjects on (1) refining processing, (2) motor fuels, (3) engineering practices, and (4) general business and committee reports.

The outstanding feature of the motor fuels session is expected to be the complete summary of the report of the A.P.I. Committee on Fuel Research from its beginning. This report is being drawn up by Dr. Graham Edgar of the Ethyl Gasoline Corp., as chairman, and Dr. J. B. Hill of the Atlantic Refining Co. and T. A. Boyd of the General Motors Corp.

The committee responsible for the formulation of this year's program includes Dr. T. G. Delbridge of the Atlantic Refining Co. as chairman. Members of the committee attending the Atlantic City meeting included Dr. R. P. Anderson, N. E. Loomis of the Standard Oil Co. of New Jersey, E. W. Isom of the Sinclair Refining Co., Dr. R. E. Wilson of the Standard Oil Co. of Indiana and A. Henrikson of the Continental Oil Co. representing Walter Miller.

MAY BUY WAVERLY STATIONS

The Standard Oil Co. of Pennsylvania, a subsidiary of the Standard Oil Co. of New Jersey is negotiating for the purchase of the bulk and service stations of the Waverly Oil Co. according to reports from Pittsburgh. Executives of both companies have refused to issue any statement regarding the transaction.

The Waverly company with refineries at Coraopolis and Pittsburgh has a large number of stations in Pittsburgh and adjoining points. The Standard of Pennsylvania has been actively increasing its distribution in Pennsylvania over the past two years. A large bulk station has been built at Pittsburgh which will be connected to the gasoline pipe line of the Tuscarora Pipe Line Co., a subsidiary of the Standard Oil Co. of New Jersey which extends from the Baytown, N. J., refinery across New Jersey and Pennsylvania to the Ohio-Pennsylvania line.

BUYS RUSSELL PLANT

The Altitude Petroleum Co., Tulsa, and Peveto and Peacock of Oklahoma City have purchased the old skimming plant of the West Kansas Refining Co. located at Russell, Kans. The plant, which has been shut down for several years, belonged to George H. Siedhoff of Wichita, Kans.

The plant is being dismantled and moved to Oklahoma City. A skimming plant may be built at the latter point.

The Altitude company has contracted with the Peerless Oil & Refining Co. covering the sale of the latter's surplus gasoline at its Chanute, Kans., refinery. Branch offices of the Altitude company are being opened at Chanute and Kansas City, Mo.

WALTER E. CUNEO DIES

CHICAGO, Ill., July 1.—Walter E. Cuneo, a widely known oil man, died here Monday night. For many years he was manager of the Chicago office of the Indiana Refining Co. in charge of tank car sales and also bought for his company as they needed material.

Following the death of his wife three weeks ago, he was taken ill and removed to a hospital, where he died. He was about 45 years of age. No children survive.

CITIES SERVICE PLANS TO ENTER CALIFORNIA

NEW YORK, June 30.—Cities Service Co. will extend its petroleum activities into the Pacific Coast area on an extensive scale through the acquisition of one or more companies now engaged in production, refining, marketing and exporting in California. Henry L. Doherty, president of Cities Service, is now in California and reports here name several companies with which it is believed negotiations are being carried on. Los Angeles reports Mr. Doherty as follows:

"There was a time when our organization felt there was not and never would be any competition from California with our eastern markets. But we have seen California oil and oil production move in on us in great volume and people in the oil and gas business have been compelled to spread horizontally and vertically to realize their expectations. We have something in view that may be closed any time. Only legal matters now stand in the way of certain interests linking with Cities Service. Most all of our distributing systems have been purchased from local companies. It is our aim to conduct our activities so they will be beneficial, both to the industry and to the public. When we enter the Pacific Coast it will not be as 'foreigners'." Mr. Doherty said that Cities Service has $200,000,000 available for immediate expansion and that several millions will be spent in entering the California field.

Invasion of the Pacific Coast field by Cities Service may be the forerunner of further expansion on a national scale for the company, which is now a prominent factor in production, refining and marketing in the Mid-Continent and eastern areas. Cities Service has also materially expanded its foreign operations in recent months.

EXPANDS DISTRIBUTION

MILWAUKEE, Wis., June 28.—The O'Neil Oil Co. announces that a half interest in the company has been bought by the Barnsdall interests. There will be no change in management and C. H. Fuller will remain as president and John W. Buss as vice president and general manager. The O'Neil Oil Co., affiliated with the O'Neil Paint & Oil Co., is one of the oldest distributers of petroleum products in the city. It is now operating 35 service stations and 9 bulk plants, all in or very close to Milwaukee. It is planned to increase the number of the service stations. At the present time they are credited with having an annual gallonage of 7,000,000 gallons of gasoline.

COMPLETE FILTER HOUSE

OIL CITY, Pa., June 29.—The Continental Refining Co. has completed the construction of a new $150,000 filter house at its refinery near here. In a refinery fire on July 15, 1929, the old filter house was destroyed. The new equipment which is twice as large as the old, has a capacity of 15,000 bbls. monthly.

The company has also made improvement in other parts of the refinery. The plant whose processing is largely confined to the manufacture of lubricants, has a crude oil capacity of 1,500 bbls. daily.

CONSOLIDATION IN TWIN CITIES

The White Oil Co. and the Petroleum Products Co., Inc., of St. Paul, Minn., have consolidated. For the present each firm will maintain its individual identity, but it is planned to shortly form a new incorporation to include the two companies. They have a large local business and are represented as far north as Duluth and St. Cloud, Minn.

HIGH PRESSURE HIGH TEMPERATURE PIPING

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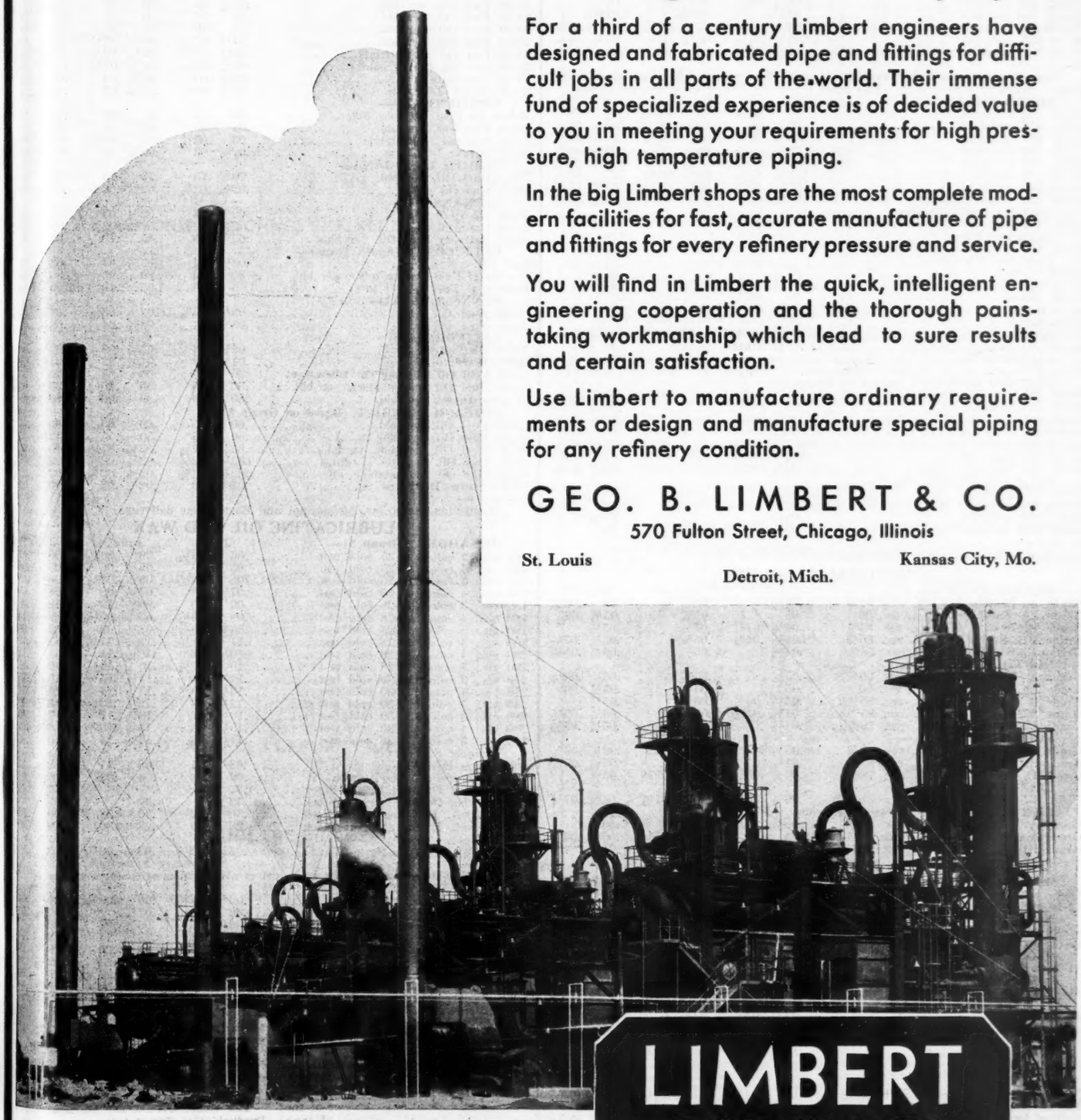

For a third of a century Limbert engineers have designed and fabricated pipe and fittings for difficult jobs in all parts of the world. Their immense fund of specialized experience is of decided value to you in meeting your requirements for high pressure, high temperature piping.

In the big Limbert shops are the most complete modern facilities for fast, accurate manufacture of pipe and fittings for every refinery pressure and service.

You will find in Limbert the quick, intelligent engineering cooperation and the thorough painstaking workmanship which lead to sure results and certain satisfaction.

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A typical cracking still installation with high pressure piping and fittings furnished complete by Limbert

LIMBERT PIPING

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	July 1		June 24		June 17	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.06	.06¼	.06¼	.06¾	.06¼	.06¾
56-58 450 endpoint	.06	.06¼	.06¼	.06½	.06¼	.06½
*58-60 437 endpoint (U. S. Motor)	.06705		.069375		.07	
*60-62 437 endpoint	†.06¼	.06¾	†.06¼	.06¾	.07¼	
*60-62 400 endpoint	.07375		.07375		.07375	
*64-66 375 endpoint	.08		†.07	.07¼	†.07	.07¼
68-70 360 endpoint	.07¼	.07½	.07¼	.07½	.07¼	.07½
64-66 437 endpoint (blend)	.06	.06¼	.06	.06¼	.06	.06¼

*Weighted average prices June 30 23, and 16 as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices show general market.

NORTH TEXAS—						
56-58 450 endpoint	.06	.06¼	.06	.06¼	.06	.06¼
58-60 450 endpoint	.05¾	.06	.05⅞	.06	.06	.06¼
58-60 437 endpoint (U. S. Motor)	.05⅞	.06¼	.06	.06¼	.06⅛	.06½
60-62 400 endpoint	.06¼	.06½	.06⅜	.06⅝	.06⅜	.06⅝
64-66 390 endpoint	.06½	.06¾	.06½	.06⅝	.06⅝	.06¾
64-66 375 endpoint	.06¾	.07¼	.06¾	.07¼	.07	.07¼
68-70 360 endpoint	.07¼	.07½	.07¼	.07½	.07¼	.07½
64-66 437 endpoint (blend)	.06¼	.06½	.06¼	.06½	.06¼	.06½
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.07	.07¼	.07	.07¼	.07⅛	.07¼
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.07		.07		.07	
PENNSYLVANIA—						
52-54 Naphtha	.07¼		.07½		.07½	
54-56 Naphtha	.07½	.07¾	.07¾		.07¾	
58-60 Gasoline	.08	.08¼	.08¼	.08½	.08¼	
60 Gasoline	.08¼	.08½	.08¼	.08½	.08¼	.08½
62 Gasoline	.08½	.08¾	.08½	.08¾	.08½	
64 Gasoline	.08½	.08¾	.08½	.09	.08½	.08⅝
68-70 350 endpoint gasoline	.08¾	.09	.09		.09	
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.07	.07½	.07	.07½	.07	.07½
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.05¾	.06	.06	.06¼	.06½	.06¾
56-58 450 endpoint	.06	.06⅛	.06⅛	.06¼	.06⅛	.06¼
58-60 437 endpoint (U. S. Motor)	.06⅛	.06½	.06	.06½	.06¼	.06⅜
60-62 400 endpoint	.06⅜	.06½	.06½	.06¾	.06½	.06¾
64-66 375 endpoint	.07	.07¼	.07	.07¼	.07	.07¼
68-70 360 endpoint	.07¼	.07½	.07¼	.07½	.07⅜	.07½
64-66 437 endpoint (blend)	.06¼	.06½	.06¼	.06½	.06¼	.06½
GULF COAST (Export)—						
58-60 U. S. Motor	.08		.08		.08	
60-62 400 endpoint	.09		.09		.09	
61-63 390 endpoint	.09¼		.09¼		.09¼	
64-66 375 endpoint	.09½		.09½		.09½	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

NATURAL GASOLINE

	July 1		June 24		June 17	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¼		.05½		.06	.06⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05		.05¼		.05¾	.06
Grade B, 76-83.9, 375 e.p., rec. 85%	.04½	.04¾	.05¼		.05½	
Grade BB, 84-92, 375 e.p., rec. 85%	.04½	.04¾	.05¼		.05¼	.05½
Grade C, 80-92, 375 e.p., rec. 78%	.04½		.05¼		.05¼	.05½
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¼		.05½		.06	.06⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05		.05¼		.05¾	.06
Grade B, 76-83.9, 375 e.p., rec. 85%	.04½	.04¾	.05¼		.05½	
Grade BB, 84-92,375 e.p., rec. 85%	.04½	.04¾	.05¼		.05¼	.05½
Grade C, 80-92, 375 e.p., rec. 78%	.04½		.05¼		.05¼	.05½
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.05½	.05¾	.05¾	.06	.06¼	.06⅜
Grade BB, 84-92, 375 e.p., rec. 85%	.04¾	.05	.05½		.05½	.05¾
Grade C, 80-92, 375 e.p., rec. 78%	.04¾	.05	.05¼	.05½	.05½	
CALIFORNIA—						
75-78 375-390 endpoint	.06¾	.07¼	.06¾	.07¼	.06¾	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05¼		.05½		.06⅛	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05		.05¼	.05½	.05¾	.06
Grade BB, 84-92, 375 e.p., rec. 85%	.04½		.05¼		.05½	

BURNING OIL

	July 1		June 24		June 17	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.03⅝	.04	.03¾	.04	.03¾	.04
42-44 water white kerosene	.04	.04¼	.04¼	.04½	.04¼	.04½
NORTH TEXAS—						
41-43 water white kerosene	.03½	.03¾	.03½	.04	.03½	.04
40-41 water white kerosene	.03¼	.03½	.03½	.03¾	.03½	
***NORTH LOUISIANA—**						
41-43 water white kerosene	.04½		.04½	.04¾	.04½	.04¾
***ARKANSAS—**						
41-43 water white kerosene	.04½		.04½	.04¾	.04½	.04¾
PENNSYLVANIA—						
43 Kerosene prime white	.04¾	.04¾	.04⅝	.05	.04¾	.05
45 Kerosene water white	.04¾		.04¾	.05	.05	.05¼
46 Kerosene water white	.05	.05¼	.05	.05½	.05¼	
47 Kerosene water white	.05¼	.05½	.05½	.05¾	.05½	.05¾
300 Mineral Seal	.06	.06¼	.06½		.06½	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04	.04½	.04	.04½	.04	.04½
Engine distillate, 43-44, 445 endpoint	.06	.06½	.06	.06½	.06	.06½
Engine distillate, 42-44, 480 endpoint	.05	.05½	.05	.05½	.05	.05½
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.03½	.03¾	.03¾	.04	.03¾	.04
42-44 water white kerosene	.03¾	.04	.04¼	.04½	.04¼	.04⅜
GULF COAST (Export)—						
41-43 prime white	.06		.06		.06	
41-43 water white	.07		.07		.07	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	July 1		June 24		June 17	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.47½	.52½	.47½	.52½	.50	.52½
18-22 Fuel Oil, per bbl.	.50	.55	.50	.55	.52½	.55
20-22 Fuel Oil, per bbl.	.55	.60	.55	.60	.55	.60
22-26 Fuel Oil, per bbl.	.57½	.65	.60	.65	.62½	.65
24-26 Fuel Oil, per bbl.	.60	.70	.60	.70	.65	.70
26-30 Fuel Oil, per bbl.	.75	.80	.75	.80	.75	.80
28-30 Fuel Oil, per bbl.	.82½	.87½	.82½	.87½	.82½	.87½
32-36 Gas Oil (industrial)	.02⅞	.02¼	.02⅛	.02¼	.02⅛	.02¼
32-36 Gas Oil (straw color)	.02¼	.02½	.02¼	.02½	.02¼	.02⅝
36-38 Distillate	.02¾	.03	.02⅝	.03	.02¾	.03
38-40 Straw Distillate	.02⅞	.03	.02⅞	.03	.02⅞	.03
NORTH TEXAS—						
Below 20 Fuel Oil, per bbl.	.45	.55	.45	.55	.45	.55
24-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
32-36 Gas Oil (industrial)	.02	.02⅛	.02	.02⅛	.02	.02⅛
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
30-32 Gas Oil	.02⅜	.02¾	.02⅜	.02¾	.02⅜	.02¾
***ARKANSAS—**						
33-36 Distillate	.02¾	.03	.02¾	.03	.02¾	.03
30-32 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02⅝	.02¾
16-22 Refinery Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
GULF COAST (South Texas)—						
Gas Oil	.03¾	.04	.03¾	.04	.03¾	.04
Bunker C Fuel (cargo lots), per bbl.	.80	.90	.80	.90	.80	.90
Bunker C Fuel (small lots)	1.05	1.10	1.05	1.10	1.05	1.10
PENNSYLVANIA—						
30-34 Fuel Oil	.03½	.03¾	.03½	.03¾	.03½	.03¾
36-40 Fuel Oil	.03¾	.04	.03¾	.04	.03¾	.04
CALIFORNIA—						
33-36 Distillate	.02½	.03	.02½	.03	.02½	.03
26-32 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
15-20 Fuel Oil, Bunker (at tidewater)	.60	.65	.60	.65	.60	.65
15-20 Fuel Oil (cargo lots), per bbl.	.55	.65	.55	.65	.55	.65
27 plus Diesel, per bbl.	.80	.90	.80	.90	.80	.90
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.60	.65	.60	.65	.60	.65
18-22 Fuel Oil, per bbl.	.50	.55	.50	.55	.52½	.55
28-30 Fuel Oil, per bbl. (zero)	.82½	.87½	.82½	.87½	.85	.95
32-36 Gas Oil (zero)	.02¼	.02⅝	.02¼	.02⅜	.02¼	.02⅜
32-36 Gas Oil (industrial)	.02⅛	.02¾	.02⅝	.02¾	.02⅝	.02⅞
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02⅞	.03

*Louisiana, Arkansas, Mississippi and East Texas delivery.

LUBRICATING OIL AND WAX

	July 1		June 24		June 17	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.06½	.06	.06½	.06	.07
100 vis., 3 color, 20-25 cold test	.05½	.06	.05½	.06	.05½	.06
150 vis., 3 color, 20-25 cold test	.08	.08½	.08	.08½	.08½	.09
150 vis., 4 color, 20-25 cold test	.07½	.08	.07½	.08	.08	.08½
180 vis., 3 color, 23-28 cold test	.09½	.10	.09½	.10	.10	.10½
180 vis., 4 color, 23-28 cold test	.09	.09½	.09	.09½	.09½	.10
180 vis., 5 color, 23-28 cold test	.08½	.09	.08½	.09	.09	.09½
200 vis., 3 color, 23-28 cold test	.11	.11½	.11	.11½	.11½	.12
200 vis., 4 color, 23-28 cold test	.10½	.11	.10½	.11	.11	.11½
200 vis., 5 color, 23-28 cold test	.10	.10½	.10	.10½	.10½	.11
240 vis., 3 color, 25-30 cold test	.14½	.15	.14½	.15	.15	.15½
240 vis., 4 color, 25-30 cold test	.13½	.14	.13½	.14	.14	.14½
240 vis., 5 color, 25-30 cold test	.12½	.13	.12½	.13	.13½	.14
280 vis., 3 color, 25-30 cold test	.16½	.17	.16½	.17	.17½	.18
280 vis., 4 color, 25-30 cold test	.15½	.16	.15½	.16	.16½	.17
280 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.15	.15½
Cylinder Stocks:						
600, steam refined, light green	.08	.11	.08	.11	.08	.11
600, steam refined, dark green	.06	.08	.06	.08	.06	.08
190-200 vis., D color, Bright Stock	.37		.37		.41	.42
150-160 vis., D color, Bright Stock	.32		.32		.32	
*150-160 vis., D color, Bright Stock	.30	.32	.30	.32	.30	.32
150-160 vis., E color, Bright Stock	.28	.30	.28	.30	.29	.30
Waxes:						
124-126 White Crude Scale Wax	.02	.02⅛	.02	.02⅛	.02	.02⅛

*High cold test. All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.06	.06½	.06½	.06¾	.06¾	.07
34 Sundebloom	.06	.06½	.07¼		.07¼	.07½
36 Miners' Neutral	.06¼	.06½	.06¾	.07	.06¾	.07
150, 3 color	.13	.14	.13½	.14	.13½	.14
180, 3 color	.18	.19	.19	.20	.19	.20
200, 3 color	.21	.23	.22½	.23	.22½	.23
220, 3 color	.23	.25	.25	.26	.25	.26
600, steam refined	.12	.13	.15	.16	.15	.16
635, steam refined	.15	.17	.20	.21	.25	.26
650, steam refined	.18	.20	.22	.24	.27	.28
600, Pennsylvania Flash	.22		.22	.25	.25	.26
630, Pennsylvania Flash	.28½	.30	.30		.30	.32
600, E filtered	.19	.20	.22	.24	.25	.26
600, D filtered	.23	.26	.27	.28	.28	.29
Pennsylvania Bright Stocks	.26	.28	.30	.32	.31	.32
*122-124 White Crude Scale Wax	.02¼		.02⅜		.02⅜	
124-126 White Crude Scale Wax	.02¼		.02¼		.02¼	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.06½	.06¾	.06½	.06¾	.06½	.06¾
200 vis., 3 color, pale oil	.09½		.09½		.09½	
300 vis., 3 color, pale oil	.10¾		.10¾		.10¾	
500 vis., 3½ color, pale oil	.12	.12¾	.12	.12¾	.12	.12¾
750 vis., 3½ color, pale oil	.13½		.13½		.13½	
1,200 vis., 3½ color, pale oil	.16		.16		.16	
2,000 vis., 6 plus color, red oil	.17		.17		.17	

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

200 vis., 5-6 color, red oil	.08¾	.09	.08¾	.09	.08¾	.09
300 vis., 5-6 color, red oil	.10	.10¼	.10	.10¼	.10	.10¼
500 vis., 5-6 color, red oil	.11¼		.11¼		.11¼	
750 vis., 5-6 color, red oil	.12¾	.13	.12¾	.13	.12¾	.13
1,200 vis., 5-6 color, red oil	.15		.15		.15	
2,000 vis., 4 color, pale oil	.17		.17		.17	
200 vis., 2½ color, filtered oil	.11	.12	.11	.12	.11	.12
300 vis., 2½ color, filtered oil	.12	.13	.12	.13	.12	.13
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13½
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.15¼	.15½	.15¼	.15½	.15¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note—Bright Stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	July 1		June 24		June 17	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.09	.10	.09	.10	.09	.10
Kerosene, water white, 41-43	.07	.07¼	.07	.07¼	.07	.07¼
*Fuel Oil, Bunker "C," 41-43	1.15		1.15		1.15	
Fuel Oil, Diesel, 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.04¾	.05¼	.04¾	.05¼	.04¾	.05¼
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
285 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Refined Wax:						
120-122 a.m.p., per lb.	.02⅞		.02⅞		.03⅛	
125-127 a.m.p., per lb.	.03¼		.03⅜		.03½	
130-132 a.m.p., per lb.	.03¾		.03¾		.04⅛	
133-135 a.m.p., per lb.	.04½		.04½		.04⅝	
135-137 a.m.p., per lb.	.04⅝		.04⅞		.04⅞	
Petrolatum in barrels, in carload lots, per pound:						
Dark Green	.01⅜		.01¾		.01¾	
Amber	.03¼		.03¼		.03¼	
Extra Amber	.03⅜		.03⅜		.03⅜	
Cream	.06⅛		.06⅛		.06⅛	
Lily White	.06¼		.06¼		.06¼	
Snow White	.08⅛		.08⅛		.08⅛	

*Lighterage 5.0 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	July 1	June 24	June 17
Kerosene, prime white	.07¾	.07¾	.07¾
Kerosene, water white	.09	.09	.09
600, steam refined cylinder stocks, in bbls.	.22	.25	.27
635, steam refined	.24	.27	.29
650, steam refined	.28	.31	.33
600, Pennsylvania Flash	.33	.35	.37
630, Pennsylvania Flash	.36	.38	.40
600, Warren E	.32	.33	.35
600, Oil City E	.31	.32	.34
Light 140-150 Bright Stocks	.37	.41	.45
Dark 140-150 Bright Stocks	.35	.39	.43

LOS ANGELES EXPORT PRICES

	July 1		June 24		June 17	
Kerosene, water white	.03¾	.04½	.03¾	.04½	.03¾	.04¼
*U. S. Motor Gasoline, 53-55, 437 e.p.	.06½	.06¾	.06½	.06¾	.06½	.06¾

*Prices on coastwise shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Oklahoma City—Same as other Mid-Continent price schedule except Empire Pipe Line Co. posted all oil 40 gravity and above at $1.43 on April 10.

Corsicana heavy (April 10, 1930).....$ .80

Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

In Noel-McConnell district Prairie Oil & Gas Co. posted April 10, below 30 degrees, 75½ cents, with 5-cent differential upward to 34-34.9, $1.00½, and then a 3-cent differential upward to 44 and above at $1.35½.

WEST TEXAS

Iatan*.....Same as North Texas

Crane-Upton-Crockett, Pecos, Winkler, Mitchell and Ector .....See gravity table, Column 3

Howard and Glasscock.....See gravity table, Column 9

Chalk† (April 10, 1930) .....$ .75

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (April 11, 1930) .....$ .90

Smackover, 24 gravity and above (April 11, 1930) 1.05

Carterville, Sarepta and Cotton Valley, below 36 gravity (April 11, 1930)... .85

Bellevue (April 11, 1930) 1.15

Urania (April 11, 1930) ..... .95

East El Dorado (April 11, 1930) ..... .90

Other fields.....See gravity table

Cotton Valley crude above 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Magnolia Petroleum Co.

GULF COAST

Grade A (April 10, 1930)* $1.15

Grade B, 25 degrees and upward .....See gravity table

Jennings, La. (April 10, 1930)† 1.10

Refugio (light) .....Same as Grade B

Refugio (heavy) (April 10, 1930)‖ .... .85

Sorrento (April 10, 1930)‡ 1.10

Markham (April 10, 1930)§..... .85

High Island (April 10, 1930)‖..... .95

*Humble Oil & Refining Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Pipe Line Co. ‖Posted by Gulf Pipe Line Co. ‖Humble Oil & Refining Co. and Gulf Coast Pipe Line Co.

(Continued on Page 146)

CRUDE OIL GRAVITY TABLE

Gravity—	1 Okla.-Kans.	2 N. C. Texas, No. La., Arkansas	3 Crane, Upton, Ector, Crockett, Winkler, Pecos, Mitchell (West Texas); Lea, N. Mex.	4 Wheeler County (Texas Panhandle)	5 Gray County (Texas Panhandle)	6 Carson and Hutchinson (Texas Panhandle)	7 Salt Creek, Wyo.	8 Stephens, Ark.	9 Howard-Glasscock (West Texas)	10 Grade B Gulf Coast and Refugio, Texas
Below 25	.75	.72	.65	....	....	....	....	....	.65	1.00
25 to 25.9	.80	.77	.68	....	....	....	....	....	.68	1.03
26 to 26.9	.85	.82	.71	....	....	....	....	....	.71	1.06
27 to 27.9	.90	.87	.74	....	....	....	....	.76	.74	1.09
28 to 28.9	.95	.92	.77	....	.75½	....	....	.81	.76	1.12
29 to 29.9	1.00	.97	.80	.75½	.80½	....	1.00	.86	.78	1.15
30 to 30.9	1.05	1.02	.82	.80½	.85½	....	1.05	.91	.80	1.18
31 to 31.9	1.10	1.07	.86	.85½	.90½	.77½	1.10	.96	.82	1.21
32 to 32.9	1.15	1.12	.89	.90½	.95½	.82½	1.15	1.01	.84	1.24
33 to 33.9	1.18½	1.17	.92	.95½	1.00½	.87½	1.18½	....	.86	1.27
34 to 34.9	1.22	1.22	.95	1.00½	1.05½	.92½	1.22	....	.88	1.30
35 to 35.9	1.25½	1.25½	.98	1.04	1.09	.96	1.25½	....	.90	1.33
36 to 36.9	1.29	1.29	1.01	1.07½	1.12½	.99½	1.29	....	.92	1.36
37 to 37.9	1.32½	1.32½	....	1.11	1.16	1.03	1.32½	....	....	1.39
38 to 38.9	1.36	1.36	....	1.14½	1.19½	1.06½	....	....	....	1.42
39 to 39.9	1.39½	1.39½	....	1.18	1.23	1.10	....	....	....	1.44
40 to 40.9	1.43	1.43	....	1.21½	1.26½	1.13½	....	....	....	1.46
41 to 41.9	1.46½	1.46½	....	1.25	1.30	1.17	....	....	....	1.48
42 to 42.9	1.50	1.50	....	1.28½	1.33½	1.20½	....	....	....	1.50
43 to 43.9	1.53½	1.53½	....	1.32	1.37	1.24	....	....	....	1.52
44 and above	1.57	1.57	....	1.35½	1.40½	1.27½	....	....	....	1.54

Column 1, Note—Above prices posted April 10, 1930, by Carter Oil Co. (beginning at 25 degrees and below), and by the Prairie Oil & Gas Co. and other purchasers beginning at 24 degrees and below, the Magnolia Petroleum alone excepted. The Magnolia on April 10 posted the following prices: Below 26 gravity, 70 cents 26-26.9, 76 cents; 27-27.9, 83 cents; 28-28.9, 88 cents; 29-29.9, 95 cents; 30-30.9, $1.02. From 31 up and including 44 degrees and above Magnolia followed Carter price schedule, but made its whole schedule apply to its gravity purchases in Kansas, Oklahoma and North Central Texas alike.

Column 2—Humble Oil & Refining Co. posted above prices April 10, 1930, and was followed by all other companies in Texas except Magnolia which posted a different price schedule than Humble up to 33.9 degrees (see note in paragraph just above). The Texas Company posted North Louisiana and Arkansas on April 10, and Standard of Louisiana posted on April 11 followed by other companies, but Magnolia's price schedule begins with below 28 gravity at 87 cents. North Central Texas includes North Texas, Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona, Moran, and Corsicana light; Arkansas and Louisiana pools include Caddo, Bull Bayou, Crichton, Cotton Valley, above 36 gravity, DeSoto, Haynesville, Homer, El Dorado and Rainbow.

Column 3—Posted by Humble Oil & Refining Co. April 10, 1930, and Magnolia Petroleum Co. April 10, 1930.

Column 4, 5 and 6—Humble Oil & Refining Co., Prairie Oil & Gas Co., Magnolia Petroleum Co., April 10, 1930.

Column 7—Mid-West Refining Co., April 11. All crude over 37 gravity $1.32½.

Column 8—Louisiana Oil & Refining Co., April 11.

Column 10—Humble Oil & Refining Co., April 10. Magnolia Petroleum Co. posted below 25 gravity 65 cents with 3-cent differential upward to and including 36 and above, which was posted at $1.01.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective March 11, 1930)

Gravity—	1 Seal Beach, Salt Lake, Newport, Summerland, Lawndale, Los Angeles, Fullerton, Richfield, Torrance, Olinda, Brea, Alamitos Heights, Huntington Beach, Signal Hill, Inglewood	2 Whittier, La Habra, Coyote Hills	3 Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills	4 Montebello	5 Santa Fe Springs (June 14, 1930)	6 Santa Maria, Coalinga	7 Wheeler Ridge, Fruitvale	8 Orcutt, Ventura, Rincon	9 Ventura Avenue (Nov. 8)	10 Elwood Terrace	11 Athens, Rosecrans, Dominguez
14 to 14.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
15 to 15.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
16 to 16.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
17 to 17.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
18 to 18.9	.76	.76	.62	.71	....	.62	.62	.65	.76	....	....
19 to 19.9	.82	.82	.70	.77	....	.70	.70	.70	.82	....	....
20 to 20.9	.88	.87	.78	.83	....	.78	.78	.78	.88	....	....
21 to 21.9	.94	.93	.86	.90	.92	.86	.86	.90	.91	....	....
22 to 22.9	1.00	.98	.94	.97	.95	.94	.94	.95	.94	....	....
23 to 23.9	1.07	....	1.02	1.05	1.01	1.02	1.02	1.02	1.00	....	....
24 to 24.9	1.14	....	1.09	1.11	1.07	1.07	1.07	1.10	1.07	....	1.14
25 to 25.9	1.21	....	1.16	1.17	1.13	1.12	1.12	1.18	1.14	....	1.19
26 to 26.9	1.28	....	1.23	1.23	1.19	1.17	1.17	1.26	1.21	....	1.24
27 to 27.9	1.35	....	1.30	1.29	1.25	1.23	1.22	....	1.28	....	1.29
28 to 28.9	1.42	....	1.35	1.35	1.31	1.27	....	....	1.35	....	1.34
29 to 29.9	1.46	....	1.41	1.38	1.37	1.31	....	....	1.39	....	1.39
30 to 30.9	1.50	....	1.47	1.41	1.43	1.35	....	....	1.43	....	1.45
31 to 31.9	1.55	....	1.53	....	1.49	1.39	....	....	1.48	....	1.51
32 to 32.9	1.60	....	1.59	....	1.55	1.43	....	....	1.53	....	1.57
33 to 33.9	1.65	....	1.65	....	1.60	1.47	....	....	1.59	....	1.64
34 to 34.9	1.70	....	....	....	1.65	1.51	....	....	1.65	1.32	1.71
35 to 35.9	1.75	....	....	....	1.70	1.55	....	....	1.71	1.39	1.78
36 to 36.9	1.80	....	....	....	1.75	....	....	....	....	1.46	1.84
37 to 37.9	1.85	....	....	....	1.80	....	....	....	....	1.53	1.90
38 to 38.9	1.90	....	....	....	1.85	....	....	....	....	1.60	1.96
39 to 39.9	....	....	....	....	1.90	....	....	....	....	1.66	2.02
40 to 40.9	....	....	....	....	....	....	....	....	....	1.72	2.08
41 to 41.9	....	....	....	....	....	....	....	....	....	1.78	2.14
42 to 42.9	....	....	....	....	....	....	....	....	....	1.84	2.20

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain, 11 to 13.9 gravity, 50 cents; 14 gravity and above, 55 cents, effective March 11. On March 11, the Union Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 50 cents.

Column 1——Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 50 cents.

Column 5—Price change posted by Standard of California June 14.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9—Posted by Union Oil Co. only.

Column 10—Standard posted price f.o.b. tanker.

Kettleman Hills, 55 gravity and above, $1.55 (posted by Standard Oil Co. of California).

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, July 1.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago†	18.0	19.0	3.0	13.0
Decatur, Ill.	18.2	19.2	3.0	13.1
E. St. Louis	17.4	18.4	3.0	12.2
Joliet	18.4	19.4	3.0	13.3
Peoria	18.2	19.2	3.0	13.1
Quincy	18.2	19.2	3.0	12.9
Davenport, Ia.	18.5	19.5	3.0	13.3
Des Moines	18.5	19.5	3.0	13.3
Keokuk	18.5	19.5	3.0	13.3
Sioux City	18.1	19.1	3.0	12.9
Duluth, Minn.	19.5	20.5	3.0	13.9
Mankato	19.1	20.1	3.0	13.7
Minneapolis	19.2	20.2	3.0	13.9
LaCrosse, Wis.	18.2	19.2	2.0	14.0
Milwaukee	17.1	18.1	2.0	12.9
Madison	17.3	18.3	2.0	13.1
Detroit, Mich.	18.8	19.8	3.0	14.7
Grand Rapids	18.7	19.7	3.0	14.6
Saginaw	18.9	19.9	3.0	14.8
Evansville, Ind.	19.0	20.0	4.0	14.0
Fort Wayne	19.4	20.4	4.0	14.4
Indianapolis	19.2	20.2	4.0	14.2
South Bend	19.4	20.4	4.0	14.4
Fargo, N. D.	20.9	21.9	3.0	15.9
Huron, S. D.	20.3	21.3	4.0	14.7
Sioux Falls	19.1	20.1	4.0	14.4
K. C., Mo.*	17.9	18.9	3.0	11.6
Springfield*	17.8	18.8	3.0	12.5
St. Louis*	16.9	17.9	2.5	12.3
St. Joseph	17.5	18.6	2.0	12.2
Wichita, Kans.	16.8	15.8	3.0	11.8
Bartlesville, Okla.	17.5	20.5	4.0	11.5

*State tax 2 cents; remainder city tax.

†Effective June 3, discounts on Q.D.A. in Chicago district 4 cents off service station price on purchases of 500 gallons or more per month and 5 cents on purchases of 1,000 gallons or more per month.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents; 75,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	10.0
V. M. & P. naphtha	16.7	12.0
Cleaner's naphtha	17.0	14.9
Stanisol	17.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 349 gallons	8.0
350 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	14.0	18.0	4.0	12.0
Fort Worth	14.0	17.0	4.0	11.0
Houston	15.0	19.0	4.0	11.0
San Antonio	14.0	18.0	4.0	11.0
El Paso	16.0	20.0	4.0	13.0
Texarkana	14.0	15.0	4.0	12.0
Muskogee*	16.0	19.0	4.0	9.0
Okla. City*	15.0	18.0	4.0	10.0
Tulsa*	16.0	20.0	4.0	10.0
Ft. Smith, Ark.	17.0	18.0	5.0	12.0
Little Rock	18.0	19.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	16.0	19.0	4.0	15.5
Pueblo	18.0	20.0	4.0	15.5
Grand Junction	23.0	26.0	4.0	19.0
Casper, Wyo.	19.0	22.0	4.0	14.0
Cheyenne	20.5	23.5	4.0	15.5
Butte, Mont.	24.5	27.5	5.0	20.0
Helena	24.5	27.5	5.0	20.0
Salt Lake, Utah	20.0	23.0	3.5	17.0
Aubu'que, N. M.	16.0	20.0	5.0	15.0
Boise, Idaho	23.5	24.5	5.0	19.0
Twin Falls	23.5	27.5	5.0	19.0

PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	16.0	*22.0	...	13.0
Philadelphia	16.0	*22.0	...	13.0
Scranton	16.0	*22.0	...	13.0
Allentown	16.0	*22.0	...	13.0
Altoona	16.0	*22.0	...	13.0
Erie	15.0	*19.0	...	13.0
Dover, Del.	19.0	21.0	3.0	13.0
Wilmington	19.0	21.0	3.0	13.0
Springf'd, Mass.	17.5	19.5	2.0	12.5
Worcester	17.3	19.3	2.0	12.3
Boston	16.5	18.5	2.0	11.5
Providence, R.I.	16.7	18.7	2.0	11.7
Hartford, Conn.	17.5	19.5	2.0	12.5
New Haven	17.6	19.6	2.0	12.6

*Includes tax of 4 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	17.6	19.6	2.0	15.6
New York*	16.3	18.3	2.0	14.3
Buffalo	17.8	19.8	2.0	14.8
Rochester	18.0	20.0	2.0	14.0
Syracuse	18.8	20.8	2.0	14.8
Boston, Mass.	16.5	18.5	2.0	13.5
Augusta, Me.	19.8	21.8	4.0	14.8
Manch't'r, N. H.	19.4	21.4	4.0	14.0
Burlington, Vt.	19.6	21.6	4.0	15.3

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	21.0	23.0	6.0	15.5
Augusta	20.0	22.0	6.0	15.5
Macon	22.0	24.0	6.0	14.0
Savannah	21.0	23.0	6.0	14.0
Birm'ham, Ala.	20.0	22.0	5.0	14.5
Mobile	18.0	18.0	4.0	13.5
Montgomery	21.0	23.0	4.0	15.0
Clarks'le, Miss.	19.0	21.0	5.0	12.5
Jackson	20.0	22.0	5.0	13.0
Natchez	19.5	21.5	5.0	13.0
Gulfport	21.0	23.5	5.0	13.0
Vicksburg	19.5	21.5	5.0	13.0
Jack'ville, Fla.	21.0	23.0	6.0	14.0
Miami	22.0	24.0	6.0	14.0
Pensacola	19.0	21.0	6.0	13.5
Tampa	21.0	23.0	5.0	13.0
Lexington, Ky.	19.0	20.0	5.0	14.5
Covington	21.0	22.0	5.0	14.5
Louisville	20.0	22.0	5.0	13.0
Ashland	19.0	21.0	5.0	15.0
Catlettsburg	20.0	21.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Birmingham and Mobile state taxes add 1-cent city levy. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City	16.5	18.5	2.0	13.5
Newark, N. J.	15.5	17.5	2.0	12.5
Annapolis, Md.	18.0	20.0	4.0	13.0
Baltimore	17.2	19.2	4.0	10.5
Cumberland	19.0	21.0	4.0	14.0
Washington	15.7	17.7	2.0	12.7
Danville, Va.	19.8	21.8	5.0	13.8
Norfolk	18.3	20.3	5.0	12.0
Petersburg	19.3	21.3	5.0	13.3
Roanoke	20.0	21.0	5.0	14.0
Richmond	18.7	20.7	5.0	12.7
Charles'n, W.Va.	18.5	20.5	4.0	12.5
Keyser	19.1	21.1	4.0	14.1
Parkersburg	17.2	19.2	4.0	11.2
Wheeling	18.4	20.4	4.0	12.4
Charlotte, N. C.	20.3	22.3	5.0	14.3
Hickory	20.6	22.6	5.0	14.6
Mt. Airy	20.5	22.5	5.0	14.5
Salisbury	20.7	22.7	5.0	14.7
Charleston, S.C.	19.3	21.3	6.0	12.3
Columbia	21.2	23.2	6.0	14.2

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco	19.0	20.0	3.0	15.5
Los Angeles	18.5	19.5	3.0	15.5
Reno, Nev.	24.0	25.0	4.0	19.0
Portland, Ore.	20.5	20.5	4.0	16.5
Seattle, Wash.	19.5	19.5	3.0	16.5
Tacoma	19.5	20.5	3.0	16.5
Spokane	23.5	23.5	3.0	20.5
Phoenix, Ariz.	17.0	19.0	4.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where discount is 1 cent.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	19.25	21.25	4.0	13.25
McCook	20.75	22.75	4.0	14.75
Norfolk	19.75	21.75	4.0	13.75
N. Platte	20.75	22.75	4.0	14.50
Scottsbluff	20.75	22.75	4.0	14.25

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points*	20.0	21.0	4.0	†14.0

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 16 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	14.5	14.5	5.0	12.0
Baton Rouge	16.0	16.0	4.0	14.0
Alexandria	17.0	17.0	4.0	14.0
Lafayette*	18.0	18.0	5.0	14.0
Lake Charles*	16.0	16.0	5.0	14.0
Shreveport	14.0	18.0	4.0	14.0
Knoxv'le, Tenn.	20.0	22.0	5.0	16.0
Memphis	18.0	20.0	5.0	12.5
Chattanooga	20.0	22.0	5.0	16.0
Nashville	19.0	21.0	5.0	16.0
Bristol	20.0	22.0	5.0	14.0
Lt. Rock, Ark.	17.0	17.0	5.0	13.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

TANK WAGON CHANGES

Continental Oil Co., effective June 3, reduced gasoline service station price 1 cent at Pueblo, Colo. Effective June 17, the company reduced gasoline service station price 5 cents and tank wagon price 4 cents at Albuquerque, N. M. Effective June 19, company reduced gasoline service station price 2 cents at Boise, Idaho. Effective June 25, company reduced gasoline tank wagon and service station prices 1½ cents at Grand Junction, Colo.

Standard Oil Co. of Louisiana reduced gasoline tank wagon price 1 cent and service station price 2 cents at Little Rock, Ark.

Standard Oil Co. of New Jersey reduced gasoline tank wagon and service station and kerosene tank wagon prices 0.2 cents at Hickory, N. C.

CRUDE OIL PRICE CHANGES

On June 26 the Ohio Oil Co. reduced the market price of Lima and Indiana crude oil 15 cents per barrel and Wooster crude oil 10 cents per barrel.

On June 28 the Imperial Oil Co., Ltd. reduced the price of Petrolia, Ontario, crude oil to $1.95 per barrel and Oil Springs, Ontario, crude to $2.02 per barrel. Both were 15-cent price reductions.

CRUDE OIL PRICES

(Continued from Page 145)

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

(Effective April 11, 1930)

Hex (Feb. 15, 1930):	
33 gravity and above	$ .87
Under 33 gravity	.66
Dutton Creek (Feb. 15, 1930)	1.35
Rock Creek, Wyo.	1.35
Salt Creek	See gravity table
Big Muddy	1.30
Grass Creek, heavy (July 27, 1928)	.90
Grass Creek, light	1.55
Mule Creek (May 21, 1929)	1.20
Elk Basin	1.55
Lance Creek	1.61
Poison Spider (March 14, 1927)	1.06
Notches (March 14, 1927)	.65
Rex Lake (February 22)	1.10
Osage	1.63
Lost Soldier (contract, May 22)	1.06
Hamilton Dome (March 14, 1927)	.85
Greybull (February 15, 1930)	1.45
Four Bear (May 21, 1929)	.85
Cat Creek	1.55
Pondera (Montana) (Feb. 15, 1930)	1.30
Sunburst (Montana) (Feb. 15, 1930)	1.65
Torchlight (May 21, 1929)	1.65
Hogback (Feb. 15, 1930)	1.40
Artesia (New Mexico)	1.06
Lea County	See gravity table

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (April 10, 1930)*	$1.15
Luling (April 10, 1930)	.85
Mirando (April 10, 1930)†	.85
Pettus (April 10, 1930)§	1.40
Salt Flat (April 10, 1930)§	1.15
Thrall‡	...
Lytton Springs (Lockhart)	See gravity table
Somerset (April 10, 1930):	
Below 33 gravity	$1.15
33 to 33.9 gravity	1.17
34 to 34.9 gravity	1.19
35 to 35.9 gravity	1.21
36 to 36.9 gravity	1.23
37 to 37.9 gravity	1.25
38 gravity and above	1.27

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight. §Humble Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency

(Effective June 17, 1930)

Seep Purchasing Agency withdrew from Bradford and Allegany Fields as a purchaser on May 16.

Penna Grade Oil in National Transit Lines (Pennsylvania)	$2.30
Penna Grade Oil in Southwest Pennsylvania Lines (Pennsylvania)	2.15
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia)	2.05
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	1.90
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 22, 1929)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Lines (Feb. 17, 1930)	1.75
Somerset Oil in Eureka Pipe Line Lines (Kentucky) (April 11, 1930)	1.31
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (April 11, 1930)	1.47
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60
Wayne District Oil in Cumberland Pipe Lines (April 11, 1930)	1.34

Tide Water Pipe Co.

Bradford district (June 17)	$2.25
Allegany district (June 17)	2.25

Pure Oil Co.

Cabin Creek, W. Va. (June 17)	$2.30
Kelly Creek, W. Va. (June 17)	2.15
Bradford Hollow (June 17)	2.15

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective April 11, 1930)

Lima (June 26, 1930)	$1.55
Wooster (June 26, 1930)	1.70
Illinois	1.65
Indiana (June 26, 1930)	1.32
Princeton	1.65
Plymouth	1.32
Waterloo (Nov. 17, 1926)	1.35
Western Kentucky	1.55
Midland, Mich.* (June 5)	1.55
Dundee, Mich. (April 16)§	
	Same as Mid-Continent gravity scale
Upper and Lower Traverse sands, Mich. (April 16)§	
	Same as Mid-Continent gravity scale
Saginaw, Mich. (April 11)†	
	Same as Mid-Continent gravity scale
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 15)‡	1.50
Oil in line in Stoll Oil Refining Co. in Oil City, Ky. (April 18)§	1.45
Oil Springs (Canada) (June 28, 1930)¶	2.02
Petrolia (Canada) (June 28, 1930)¶	1.95

*Posted by Pure Co. †Posted by Sun Oil Co. ‡Posted by Paragon Development Co. §Posted by Stoll Oil Refining Co. ¶Posted by Imperial Oil Co., Ltd. ‖Posted by Standard of Indiana for boat shipment. Local Refiners posted Mid-Continent prices on April 11.

MEXICAN CRUDE

Panuco*	$ .60

*F.o.b. ship, based on May transactions.

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...let this real merchandising service increase your gallonage!

Here's the new way—the progressive way—to sell gasoline! You give a motorist not only a brand that assures quality, but a *type* that fits his engine and his own driving habits. Today—with changing engines and varying driving conditions—*no one kind* of gasoline can satisfy every motorist and serve every purpose!

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SINCLAIR REFINING COMPANY, INC., 45 Nassau Street, New York—*Atlanta, Chicago, Houston, Kansas City*

California Problems Being Adjusted

Opinion of President Lockhart of Rio Grande. United Gas Acquires Northern Texas Utilities. Dividends Declared

L. E. Lockhart, president of the Rio Grande Oil Co. of California, announced that the company's earnings were more than sufficient to justify continuance of regular quarterly dividends of 50 cents a share on the common stock, which is at an annual rate of $2 cash. The company recently declared the 50 cents a share quarterly dividend payable July 25 to stock of record July 5.

The most serious problems confronting the oil business in California, in the opinion of Mr. Lockhart, are those in the refining and marketing divisions. He believes, however, that these phases will soon be adjusted. "Production problems in California are being rapidly solved," he said, "through the existing curtailment program."

The oil industry is too big a business, and too important to the State, for any long-time continuance of economic disturbances within the industry, he stated, and when a definite settlement does come about, a healthy condition should face the whole industry there.

Arkansas Natural Gas

Arkansas Natural Gas Corp. declared regular quarterly dividend of 15 cents on preferred, payable July 1 to stock of record June 20.

Mutual Oil

Charles S. Davis and C. Bartley Nesburn, formerly identified with San Francisco banking interests, have been elected president and vice president, respectively of Mutual Oil Co.

Memphis Natural Gas

Memphis Natural Gas Co. has redeemed its outstanding first mortgage 6 per rent bonds, amounting to $6,153,500, due August 1, 1943, at 103. The company has outstanding 10,000 shares of preferred and 920,000 shares of common stock, and no bonds. A 44 per cent common stock interest in Memphis Natural Gas was recently acquired by Appalachian Gas Corp.

Indiana Pipe Line

Indiana Pipe Line Co. declared an extra dividend of 25 cents and regular quarterly dividend of 50 cents, both payable August 15 to stock of record July 25. Similar extra dividends were paid in the last three quarterly periods.

Midland Natural Gas

Midland Natural Gas Co. is planning issuance of $2,500,000 five-year 6 per cent convertible debentures to provide funds to be used in part by the company for acquiring additional income producing properties consisting of more than 23,000 acres of natural gas lands located principally in southwestern Pennsylvania and adjoining counties of West Virginia. Acreage to be acquired has 121 wells having a daily production of 6,019,305 feet of gas. These debentures will constitute the only funded debt of the company and will be convertible into participating Class A stock of no par value, of which 115,000 shares are outstanding, in addition to 200,000 shares of no par common stock. Financing will be handled by E. R. Diggs & Co., Inc.

Mexican Petroleum

Mexican Petroleum Co., which is 98 per cent owned by Pan American Petroleum & Transport Co., declared the regular quarterly dividends of $3 on the common and $2 on the preferred. Both dividends are payable July 21 to stock of record June 30.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

Jan. 22	47.13	Apr. 9	52.04
Jan. 29	47.46	Apr. 16	53.39
Feb. 5	48.13	Apr. 23	53.70
Feb. 12	47.49	Apr. 30	50.23
Feb. 19	45.85	May 7	51.67
Feb. 26	46.71	May 14	49.71
Mar. 5	46.79	May 21	50.98
Mar. 12	48.30	May 28	50.94
Mar. 19	51.00	June 4	46.65
Mar. 26	51.55	June 11	43.41
Apr. 2	53.26	June 18	42.37

United Gas Corp.

United Gas Corp. has acquired control of the Northern Texas Utilities Co. through purchase of a large majority of the preferred and common shares, according to announcement by Electric Power & Light Corp., which controls United Gas. Northern Texas Utilities controls in

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended June 25 Sales	Week ended June 25 High	Week ended June 25 Low	Week ended June 25 Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
31½	18	3,800	22½	21½	22	Amerada Corp.	(sh)	922,075	N.P.	50cQ	1-31-30	37⅝	27⅝	43⅞	27⅛	42⅝	17½
37	15¼	900	16	15½	16	American Republic Corp.	(sh)	209,180	N.P.	.....	3-20-29	82½	35⅛	85	51⅛	64¾	12½
51	32½	100	51	51	51	Associated Oil		$57,260,300	$25	50cQ	12-31-29	50¼	35	53⅜	37½	47¼	34½
51⅜	30⅛	9,400	34	32½	34	Atlantic Refining		$66,763,775	$25	25cQ	12-16-29	131⅜	104	66⅜	50	77⅞	30
34	20½	6,000	21⅛	21	21⅛	Barnsdall Corp.		$56,546,600	$25	50cQ	12- 7-29	35½	20¾	53	20	49⅛	20
30½	18⅜	9,000	19	18½	18⅝	Continental Oil of Delaware	(sh)	4,741,554	N.P.	.....	3-31-27	..	..	..	..	47⅛	18
71⅛	38⅝	2,100	40¼	38⅝	40	General Asphalt	(sh)	413,333	N.P.	50cQ	.....	96¾	65	94⅞	68	94¾	42¼
116⅞	52¼	16,400	70½	66	69⅞	Houston Oil		$24,968,600	$100	.....	.....	175¾	60⅛	167	79	109	26
32	19⅜	13,800	20½	19⅜	20⅛	Independent Oil & Gas	(sh)	1,362,295	N.P.	50cQ	1-31-30	32¾	17⅝	38⅜	21¾	39⅜	17⅜
28⅜	8⅞	13,200	10⅜	10	10	Indian Refining		$12,565,070	$10	.....	5-31-24	12⅛	7⅝	39⅝	9	53	13⅛
26½	21¼	1,200	23½	22¾	23½	Lago Oil & Transport	(sh)	3,992,122	N.P.	.....	5- 1-27	37¾	20½	39⅛	27⅜	38⅜	16½
12	8	3,100	8⅛	8	8⅛	Louisiana Oil Refining	(sh)	1,190,063	N.P.	.....	.....	18⅛	10	19¾	9⅜	18	7
10⅜	5	500	5	5	5	Maracaibo Oil	(sh)	330,000	N.P.	.....	.....	22¾	12	25½	12½	18½	5⅛
37	16⅛	13,800	18⅝	17⅛	17⅞	Mexican Seaboard	(sh)	1,244,383	N.P.	.....	12-15-20	9¼	8	72	4⅝	69⅜	9¼
33	22¼	5,000	23¼	22⅝	22⅝	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	50cQ	12-15-29	39⅜	25½	44½	25⅛	39⅞	22⅛
2½	⅞	1,700	1¼	1	1¼	Middle States, ctfs.		$23,736,130	$10	.....	7- 1-23	3¾	1⅝	7⅜	2⅜	5⅛	⅝
64¼	51⅝	100	55	55	55	Pan American P. & T.		$50,084,700	$50	.....	10-20-27	65⅞	40⅛	54⅞	38¼	69	40½
67½	50½	1,300	55¾	55¼	55⅝	Pan American P. & T. "B"		$121,110,650	$50	.....	11-15-24	66⅜	40¼	58⅞	37¾	69¼	40½
		No sales.				Pan American Western B		$400,000	N.P.	.....	1-30-27	37⅞	16¾	28⅝	15½	18½	13⅜
12¾	4⅛	300	7	6½	6½	Panhandle P. & R.	(sh)	199,370	N.P.	.....	.....	18⅞	8	21¾	11½	15¼	3
80	47½	100	73	73	73	Panhandle P. & R. pfd.		$2,564,400	$100	.....	7- 2-23	83	54	108	70	76	47½
44¾	29⅛	5,300	30½	29⅞	30½	Phillips Petroleum	(sh)	2,593,075	N.P.	50cQ	1- 2-30	60¼	36¼	53⅞	35¼	47	24¼
		No sales.				Phillips Petroleum rts		.....	.....	.....	.....	..	..	..	..	..	..
2½	1	1,200	1⅛	1⅛	1⅛	Pierce Oil Corp.		$29,622,831	$25	.....	.....	1⅛	½	5¼	½	3⅜	1
7⅛	2¼	9,300	4⅝	4⅛	4¼	Pierce Petroleum	(sh)	2,500,000	N.P.	.....	.....	5½	2½	7	3½	5⅞	½
54	36	2,300	36⅞	36	36	Prairie Oil & Gas		$60,848,000	$25	50cQ*	12-31-29	55½	45⅝	68	46	65⅝	40½
60	44⅛	2,300	45⅛	44½	45	Prairie Pipe Line		$101,250,000	$25	75cQ†	12-31-29	190	130¾	280	172	65	45
11⅞	6½	300	7	7	7	Producers & Refiners		$37,438,950	$50	.....	9-15-23	33⅞	16¾	29⅞	16	25⅞	4
40	30	120	30	30	30	Producers & Refiners pfd.		$2,845,350	$50	.....	5- 1-25	50	36⅞	49⅝	41	46¾	25½
27¼	19½	4,000	20	19½	19¾	Pure Oil		$75,959,250	$25	37½cQ	12- 2-29	33½	25	31⅝	19	30¾	20
28¼	14¾	5,100	15⅞	15⅛	15½	Richfield Oil		$52,410,875	$25	50cQ	11-15-29	28⅝	25⅜	56	23	49⅝	20
25¾	15⅝	2,000	16¼	15⅝	15⅝	Rio Grande Oil	(sh)	1,236,270	N.P.	$2A	7-25-29	..	..	37½	32	42½	15
56½	49¼	10,800	51⅜	50½	51⅜	Royal Dutch, N. Y.	(sh)	611,303	$1.873	.....	9-13-29	54½	44¼	64	44⅝	64	43⅛
48¾	42⅜	100	44⅛	44⅛	44⅛	Shell Transport & Trading Co.		£23,985,000	£1	$1.45	7-23-29	48⅝	40½	47⅞	41⅜	57½	40⅝
25½	18	3,500	18¾	18½	18¾	Shell Union Oil	(sh)	13,066,497	N.P.	35cQ	12-31-29	31¾	23⅝	39¼	23¼	31¾	19
37	18	1,300	20¼	20	20⅛	Simms Petroleum		$8,353,620	$10	40cQ	12-14-29	25⅜	14¼	27¼	18⅛	40⅛	15
32	20	35,100	20⅝	20	20¼	Sinclair Consolidated	(sh)	5,500,000	N.P.	50cQ	1-15-30	22⅜	15	46¾	17⅝	45	21
112¼	108	100	110	110	110	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	11-15-29	104½	97	110	102½	111	103
42	28½	2,000	28⅞	28½	28¾	Skelly Oil		$27,441,250	$25	50cQ	12-16-29	37⅜	24⅛	42⅝	25	40½	28
75	55½	9,100	59	57½	58½	Standard of California	(sh)	12,594,098	N.P.	62½cQ	2-15-30	60¾	50⅜	80	63	81⅞	51½
49	29	2,100	30¼	29⅝	29⅝	Standard Oil of Kansas		$8,000,000	$25	50cQ	12-16-29	20⅞	14⅝	37¾	15	33⅜	18
84⅞	58	33,300	63	61½	63	Standard Oil of New Jersey		$634,999,200	$25	25cQ*	12-16-29	41⅜	35⅛	59⅜	37¾	83	49
40⅝	30	12,900	30¾	30	30¼	Standard Oil of New York		$445,223,675	$25	40cQ	12-16-29	34⅛	29⅜	44¼	28¾	48⅛	31¾
70	50	1,200	57	57	57	Sun Oil	(sh)	1,416,869	N.P.	25cQ	12-16-29	34⅞	30	77	31½	86⅜	55
9⅜	5	2,000	5¼	5	5	Superior Oil Corp.	(sh)	776,979	N.P.	.....	12-20-20	..	..	..	..	24	5¼
60½	50¼	11,900	50⅝	50¼	50⅝	The Texas Corporation		$246,204,900	$25	75cQ	1- 1-30	58	45	74¾	50	71⅞	50
14½	8¼	2,200	9⅜	9	9	Texas Pacific Coal & Oil Co.		$9,304,890	$10	2½%A‡	12-31-29	18⅞	12	26⅝	12⅛	23⅞	9½
31	19½	200	30¾	28¾	30¾	Tide Water Oil	(sh)	2,191,759	N.P.	20cQ	12-31-29	29½	19	41½	19⅝	40	14
94⅞	85½	100	87	87	87	Tide Water 5½% pfd.		$19,947,000	$100	$1.25Q	11-15-29	90⅛	85	100⅛	86	97½	85⅛
17¾	10¾	3,900	12⅜	12	12	Tide Water Associated	(sh)	5,560,424	N.P.	30cS	2-15-30	19⅛	15¾	25	14⅜	23½	10
89¾	78	600	83	82½	82½	Tide Water Associated pfd.		$73,284,500	....	$1.50Q	2- 2-30	..	..	..	..	90⅞	74⅛
24	16¼	23,300	17¼	16¾	16¾	Transcontinental Oil	(sh)	3,742,029	N.P.	.....	.....	10⅜	3¾	14¾	7¼	15¼	5⅛
50	37	2,100	38⅛	37¼	38	Union Oil of California		$104,342,375	$25	50cQ	11- 9-29	56½	39⅝	58	42⅝	57	42⅛
38½	25¼	300	29	29	29	Union Tank Car	(sh)	1,254,048	$100	$1.25Q	12- 2-29	127½	94	128⅛	110	163¾	121⅞
27	12¾	3,800	13	12⅞	12⅞	Warner-Quinlan	(sh)	632,948	N.P.	50cQ	1- 2-30	34½	24½	44⅞	26	42⅞	15
		No sales.				White Eagle Oil & Refining	(sh)	505,100	N.P.	50cQ	1- 20-30	27½	20	38	20⅛	38	25
21	11½	1,100	17	15¾	15¾	Wilcox Oil & Gas	(sh)	428,907	N.P.	.....	5-10-28	..	..	..	..	29¾	12⅞

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock.

In comparing highs and lows for the several years in the three tables it will be necessary to take into consideration cases where there have been splits in the stock.

fee or by lease the gas rights on a large acreage in the Amarillo Field in Texas and owns a main pipe line and branch lines extending from this field to Wichita Falls, Tex., with franchise and natural gas distribution in Wichita Falls and nine other communities in the intermediate territory. In Wichita Falls the company does only an industrial and commercial heating business. In addition to its direct sales, Northern Texas Utilities sells natural gas for resale to a number of other distributing companies.

British-American Oil

British-American Oil Co., Ltd., declared an initial quarterly dividend of 20 cents on the new capital stock of no-par value, two shares of which were recently exchanged for each share of the old no-par stock. The dividend is payable July 2 to stock of record June 14.

On April 1 a quarterly dividend of 40 cents was paid on the old stock. Dividends amounted to $1.50 in 1929 on the old stock, including four regular quarterly dividends of 25 cents each and two extra dividends of 25 cents each. On January 1 this year a quarterly dividend of 25 cents and an extra dividend of 50 cents were paid.

Venezuelan Oil Concessions

Report of Venezuelan Oil Concessions, Ltd., controlled by Venezuelan Oil Concessions Holding Co., Ltd., for year ended December 31, 1929, shows gross earnings of £4,888,020, comparing with £4,449,992 in 1928. Drilling, production and field expenses were £2,240,130, office expenses, charges, taxes, etc., were £828,669 and depreciation £733,556, leaving net profit of £1,085,665, which compares with net profit in preceding year of £1,206,430. After deducting dividends paid, less tax, of £1,114,877, there was a deficit of £29,212, which, with £1,304,883 carried forward from 1928, leaves a total carryforward of £1,275,671. Capital stock consists of 1,000,000 shares, par £1.

Galena Oil

Consolidated balance sheet of Galena Oil Corp. as of April 30, 1930, after giving effect to the plan of reorganization of Galena-Signal Oil Co. of Pennsylvania, follows:

Assets: Plant account, $810,890; cash, $711,702; bills and accounts receivable, $376,795; inventories, $1,124,078; plant supplies, $131,637; guaranty deposit, $50,000; deferred charges, $25,814; total, $3,230,916.

Liabilities: Capital stock (after providing for operating losses from the inception of the corporation to date and to be represented by an estimated 277,000 no-par shares which will be outstanding when the exchange of certificates of deposit, representing shares of Galena-Signal Oil Co. deposited under the latter's plan and agreement of reorganization, is completed), $3,013,202; bills and accounts payable, $125,260; accrued expenses and

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INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended June 25 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
⅜	⅛	32,500	⅛	⅛	⅛	Amer. Con. Oilfields		$11,018,000	$5	.....	.....	2 1/16	.55	1½	.53	72c	⅛
4½	1½	1,800	2⅜	2⅛	2⅛	Amer. Maracaibo	(sh)	700,000	N.P.	.....	.....	7½	2⅜	9½	3½	8⅝	1⅛
1⅜	1	200	1¼	1¼	1¼	Argo Oil	(sh)	683,971	$10	.....	.....	2⅜	1	4½	2¼	5	1½
21	20¼	300	20¼	20¼	20¼	British American (new, C.W.I.)		$1,311,321	N.P.	25cQ*	1- 2-30	40	20½	55	32¾	62	7⅞
2¾	¾	500	1¼	1¼	1¼	Carib. Syndicate		$131,250	25c	.....	.....	28¼	15½	4½	3⅞	4⅞	1
44¼	24⅛	40,600	26½	25⅞	26½	Cities Service	(sh)	24,290,359	N.P.	30cA†	1- 2-30	58¾	40¼	90⅞	54	68⅛	20
93⅞	88	500	89⅛	88⅞	89⅛	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	1- 2-30	95⅝	87	103½	94½	98¾	84
		No sales.				Cities Service, rts.		.....	....	.....	.....	..	..	..	..	..	..
¾	¼	1,000	⅜	⅜	⅜	Columbia Syndicate		$2,000,000	$1	.....	.....	3⅞	1⅛	3¼	.76	2	⅛
5⅞	3½	300	3½	3½	3½	Cons. Royalty		$5,000,000	$10	15cQ	10-25-29	9¾	6⅜	8⅞	6¼	11⅛	2½
7⅝	5½	300	5⅞	5⅞	5⅞	Creole Petroleum E	(sh)	5,977,873	N.P.	.....	.....	14⅞	9½	17½	9½	11¾	5⅝
1	¼	200	½	⅜	½	Crown Central	(sh)	587,000	N.P.	.....	.....	3	.50	3¼	.76	2½	¼
21¾	12	500	13⅛	13⅛	13⅛	Darby Petroleum	(sh)	1,019,392	N.P.	25cQ	1-15-30	12	4	33½	3¼	26	6½
11	4½	300	6⅝	6⅝	6⅝	Derby Oil & Refining	(sh)	500,000	N.P.	.....	.....	2½	74	2¼	1	11	2
60	30	25	50	50	50	Derby Oil & Refining pfd		$48,500	N.P.	.....	.....	16¾	4	21⅛	7½	44	20¾
166⅞	117⅛	2,900	120	118½	119¼	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	1- 1-30	118	86¼	165	101⅛	209	115
1¾	¾	300	⅞	⅞	⅞	Intercontinental Pet.		$5,682,000	$5	.....	.....	2½	.80	3⅝	1	2⅞	⅝
3	1¾	1,000	1⅞	1¾	1¾	Kirby Petroleum	(sh)	750,000	N.P.	.....	.....	2¼	1⅛	3	1¼	3⅝	1¼
4¾	1⅛	7,200	1¾	1⅝	1¾	Leonard Oil & Dev.		$50,000,000	$25	.....	.....	10⅞	5⅛	9⅜	5½	6⅛	1
29	18⅝	400	20⅜	20⅜	20⅜	Lion Oil & Refining	(sh)	250,000	N.P.	50cQ	1-31-30	27½	20	43⅞	20	38⅞	18
55⅞	34⅛	1,600	36½	35⅛	35½	Lone Star Gas	(sh)	5,000,000	N.P.	20cQ	12-31-29	59⅜	37	69⅛	48½	67⅞	28
4½	1¾	2,100	2¼	2	2⅛	Lone Star Gas rts.		.....	....	.....	.....	..	..	..	..	..	..
½	⅛	2,000	¼	¼	¼	Magdalena Syndicate	(sh)	850,000	$1	.....	.....	2⅞	.80	1⅞	.50	1¼	⅛
16	12	100	12½	12½	12½	Margay Oils		$160,000	N.P.	50cQ	1-10-30	52	12	48½	32	38½	14
7½	2	200	3	3	3	Mexico-Ohio Oil		.....	....	.....	.....	12¼	5	8	2¾	6⅜	2½
¾	⅜	400	½	½	½	Mountain & Gulf		$4,000,000	$1	2cQ	1-15-30	1½	1	1⅜	.76	1½	⅛
12½	8	800	8½	8½	8½	Mountain Producers		$1,682,182	$10	40cQ	1- 2-30	29¼	22¾	28⅞	19½	22⅞	7
3½	2⅜	400	2¾	2¾	2¾	New Bradford Oil		$1,095,291	$5	12½cQ	1-15-30	5⅞	4⅝	5⅝	4¼	5	2¼
7¼	3½	100	3½	3½	3½	New Mex. & Arizona		$1,000,000	$1	.....	.....	16	9¼	11⅞	7⅜	9⅝	2¼
11¼	6	1,400	6¾	6	6	North Central Texas	(sh)	400,000	N.P.	15cQ	12- 2-29	12¾	9½	14¼	8½	18½	6⅛
2	¾	3,100	¾	¾	¾	Pandem	(sh)	489,875	N.P.	.....	.....	9⅜	3¼	6	2⅛	3½	⅛
4⅜	1⅞	200	2⅛	2	2⅛	Pantapec Oil	(sh)	1,506,000	N.P.	.....	.....	12⅛	7	15⅝	8½	10¼	1⅞
		No sales.				Pennok Oil		$150,000	N.P.	.....	.....	13½	5⅛	7¾	4⅞	7⅝	4⅜
10½	9	400	9½	9½	9½	Red Bank Oil	(sh)	250,000	N.P.	.....	.....	24⅜	7	18	4⅞	16	9⅝
5⅜	2⅛	200	2⅞	2⅞	2⅞	Reiter-Foster	(sh)	388,584	N.P.	10cQ	12- 9-29	15½	3½	12⅞	4½	8½	1⅛
8⅝	3⅝	200	4	4	4	Ryan Consolidated	(sh)	500,000	N.P.	.....	.....	7	4½	12	4⅛	11	3
2½	1⅜	100	1⅝	1⅝	1⅝	Salt Creek Consolidated	(sh)	1,286,300	$10	10cQ	1- 2-30	8	5¼	7¼	5½	5⅞	1⅞
15¼	9⅛	400	9¼	9⅛	9⅛	Salt Creek Producers	(sh)	1,496,859	$10	50cQ	2- 1-30	35½	27¼	35	23⅛	25⅞	9
1	½	600	½	½	½	Savoy Oil		$750,000	$5	.....	.....	7	1¼	3½	1	2½	⅞
		No sales.				Transcontinental pfd		.....	....	.....	.....	..	..	..	..	..	..
4½	2	400	2¼	2	2	Venezuelan Petroleum	(sh)	755,090	$5	5cQ	11-15-29	7⅜	4¼	9⅛	4¾	6½	1⅝
5	2	600	4	4	4	Woodley Petroleum		$500,000	$1	.....	.....	7	4⅜	8¼	4⅞	9½	2
2½	½	200	1½	1½	1½	Y Oil & Gas (new)		$100,000	N.P.	.....	.....	6	1¾	8⅜	2¼	2⅞	¼

*Including one-half per cent monthly in stock. †Payable monthly and a monthly stock dividend of one-half per cent. x Ex-dividend.

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended June 25 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
18½	12¼	400	18½	18⅜	18½	Anglo-American Oil (vot. C.O.D.)		£4,192,635	£1	.36 4/16	11-27-29	21⅝	17⅞	22⅜	14⅞	17	11
1	½	500	½	½	½	Atlantic Lobos		.....	....	.....	.....	..	..	..	..	..	..
25	14	100	20	20	20	Borne Scrymser		$1,000,000	$25	$18A	10-15-29	69	50	56½	44½	46½	25
69	57	100	56	56	56	Buckeye Pipe Line		$10,000,000	$50	$1Q	12-14-29	60	45	76	53	74¼	55
184⅞	140⅛	200	140⅛	140⅛	140⅛	Chesebrough Mfg.		$3,000,000	$25	1Q*	12-30-29	126	76½	161	117	210	130
17¾	12⅛	500	16½	16½	16½	Continental Oil (V.T.C.)		$36,057,840	$10	.....	12-15-27	22⅝	16¼	23	16	29	10
65¾	35	100	35	35	35	Cumberland Pipe Line		$1,500,000	$50	$1Q	12-15-29	137	89	114	67	75¾	40
54¾	41½	150	42	42	42	Eureka Pipe Line		$5,000,000	$100	$1Q	11- 1-29	68½	47	88	64⅛	70½	42
7	2½	100	5¾	5¾	5¾	Galena Oil Corp.		$16,000,000	$100	.....	.....	13½	3½	13	4¼	6½	3
119	78	5,900	85½	83⅝	83⅝	Humble Oil & Refining		$74,103,300	$25	50cQ	1- 1-30	68½	54	114¾	59¼	128	74⅛
311	305	100	307	307	307	Illinois Pipe Line		$20,000,000	$100	$10SA	12-16-29	182	123¾	290½	176½	340½	260
30	18⅛	3,800	19¼	19	19	Imperial Oil of Canada (new)	(sh)	26,421,768	N.P.	12½cQ	12- 2-29	64¾	37¾	104	56¾	41	22
41	32	100	33	32	32	Indiana Pipe Line		$3,000,000	$10	50cQ‡	2-15-30	94½	61	91⅞	74⅝	41⅞	26
24	17⅝	2,800	18	17⅝	17⅝	International Pet.	(sh)	14,247,088	N.P.	12½cQ	12-16-29	29	28¼	55	35	30⅜	15
22⅜	15⅛	600	17¼	17¼	17¼	National Transit		$6,362,500	$12.50	25cQ‡	12-16-29	24	13½	32⅜	19⅝	25⅛	10½
21⅜	10⅛	300	15	14	14	New York Transit (new)		$1,000,000	$10	40cQ†	1-15-30	44½	31¼	75	38½	17½	10
54	35½	500	39	35½	35½	Northern Pipe Line‖		$2,000,000	$50	$2SA	1- 2-30	100	70	69	56½	63	41
76⅜	62⅛	3,100	64⅛	62⅛	62⅛	Ohio Oil		$60,000,000	$25	5cQ‡	12-14-29	67⅞	52	84	58½	79⅞	64⅛
32	17	400	18	17	18	Penn Mex. Fuel		$10,000,000	$25	50cQ	12-14-29	39	12	84	28	44½	20
33	16	200	16	16	16	Solar Refining		$4,000,000	$25	$1.25SA	12-20-29	..	..	..	..	50	29
20⅞	13	200	16⅛	16⅛	16⅛	Southern Pipe Line		$1,000,000	$10	50cQ	.....	27¼	15½	19	15	22½	13
45⅞	35	800	37¼	37	37	South Penn Oil (new)		$30,000,000	$25	50cQ	12-30-29	41½	35	71⅞	36¾	60¼	35⅛
65	45¼	50	45¼	45¼	45¼	Southwest Pa. Pipe Lines		$1,750,000	$50	$1Q	1- 10-29	83	55½	102	70	70	60
59⅞	47⅝	9,700	48¼	47⅝	48⅛	Standard Oil of Indiana		$348,175,069	$25	62½cQ‡	12-16-29	81½	64⅝	95⅞	70⅞	63	45
40½	30⅛	2,500	31⅜	30⅝	31¾	Standard Oil of Kentucky		$25,654,516	$10	40cQ	12-16-29	130	111½	179¾	122¼	46⅞	29
48⅞	44⅛	100	47⅛	47⅛	47⅛	Standard Oil of Nebraska		$4,649,225	$25	62½cQ‡	12-20-29	49½	40	54⅞	39⅞	50¼	40
108½	77	200	83⅞	82	83⅞	Standard Oil of Ohio		$14,000,000	$25	62½cQ	1- 2-30	87½	72	134	71	129	60
10	7	100	7	7	7	Swan-Finch Co.‖		$861,466	$25	.....	12- 2-29	21	14½	23½	16	18	10
97⅞	76¼	4,000	79⅝	78⅝	79⅜	Vacuum Oil Co.		$126,180,350	$25	$1Q	12-20-29	..	..	111	72	133¾	75

*Plus 50 cents extra. †Plus 10 cents extra. ‡Plus 25 cents extra. ‖Bid and ask. x Ex-dividend.

EAST COAST GASOLINE MARKET IS IMPROVED

(Continued from Page 139)

which once again appears to be oversupplied in the Gulf Coast area.

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended June 21 totaled 497,000 bbls., a daily average of 71,000 bbls., compared with 405,000 bbls., a daily average of 57,857 bbls. for the previous week and a daily average of 52,571 bbls. for the four weeks ended June 21. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	24,000
New York	307,000
Philadelphia	114,000
Others	52,000
Total	497,000
Daily average	71,000
At Gulf Coast ports—	
All ports	None
At Atlantic and Gulf Coast ports—	
Total	497,000
Daily average	71,000
Daily average four weeks	52,571

Distribution of total California receipts is as follows:

Gasoline	445,000
Gas oil	52,000

Shipments of refined products from California for East Coast and Gulf ports during the week (with identity of owner of tanker where such owner is an oil company) follow:

To New York—80,500 bbls. of gasoline on the Dilworth; 64,000 bbls. of Diesel oil on the Eagle (Standard Transportation Co.-S.O.N.Y.); 78,500 bbls. of gasoline on the Astral (Standard Transportation Co.-S.O.N.Y.), and 129,300 bbls. of gasoline on the Tamiahua (Richfield).

To Baltimore—77,600 bbls. of gasoline on the Washington; 77,800 bbls. of gasoline on the Pat Doheny (Richfield).

To Miami—77,700 bbls. of gasoline on the Atlantic Sun (Sun Oil Co.).

To Fall River—81,000 bbls. of kerosene on the Antietam.

To Everett, Mass.—70,000 bbls. of fuel oil on the Oregon.

MEASURING ANTIKNOCK VALUES IS EXPLAINED

(Continued from Page 120)

the adaptability of this particular test equipment to various test methods. These tests have been practically completed and an analysis of the results is being made.

Special Studies

In addition to the program outlined above, to each laboratory was assigned the study of two or more factors likely to influence the measurement of detonation. For example, the bureau is studying the effect on detonation rating of atmospheric conditions, engine conditions, and the intensity of detonation used in the rating. The results of this work will be very important when the committee begins to consider specifications for a standard test.

In view of the great need for some common scale of antiknock value, the committee has recently recommended that detonation ratings be in terms of equivalent mixtures of normal heptane and isooctane. It is proposed to specify these mixtures by "octane numbers"; the octane number being the number of parts by volume of iso-octane required in 10 parts by volume of normal heptane. Of course, these octane numbers may vary somewhat according to the particular method of test, but they will serve to give a better idea of the relative antiknock values of commercial gasolines pending agreement on a standard detonation test.

In the summer of 1929, a group of English engineers expressed a desire to co-operate with the Detonation Subcommittee in its program. These engineers represent the Anglo-American Oil Co., the Anglo-Persian Oil Co., the Asiatic Petroleum Co. and the British Air Ministry. They have been supplied with the committee's engine and test fuels and will carry out the committee's program, and also a program of their own. It is hoped, therefore, that the joint investigation of detonation measurement will result in an international agreement as to method, technique and units.

In addition to the engine described above, the Bureau of Standards has four other engines regularly used for detonation testing. The standard bureau test is made on a single-cylinder Liberty engine; an old model Delco and a new Series 30 Ethyl Gasoline Corp. engine are used on some work. All of these engines are operated at fixed compression, although the Liberty may be used at a number of ratios. A General Motors variable compression fuel research engine is used to some extent in checking work done on the Cooperative Fuel Research engine.

REFINERY CURTAILMENT IS DISCUSSED BY A.P.I.

(Continued from Page 31)

subsequent regulation by individual refiners of their production schedules in such a manner that the total of "working stocks" would not be substantially exceeded. Success of this move, it was felt, would give the industry a "yardstick" by which it could gauge its productive requirements and achieve actual parity between supply and demand.

Meetings of the refining division have come to constitute a virtual open forum for the refining branch of the industry and leaders express the hope that as a result of the statistical data presented for consideration at the session just closed, refiners would be in a more receptive frame of mind regarding the idea of individual curtailment of refinery operations for the good of the industry as a whole.

HIGHEST PRODUCING WELL IN THE WORLD

(Continued from Page 33)

vertical distance between the derrick floor of the South Park Oil Co.'s well in Colorado and the bottom of the Standard's well in California, the highest and deepest, based on sea level, is 16,326 feet, or 486 feet over 3 miles. The Standard's well was drilled with rotary tools and the diameter of the hole at the bottom is 7⅞ inches. At present the well is standing idle in good condition to deepen and it is probable deeper drilling will be attempted in the near future.

Effect of Altitude

A question was raised whether altitude had any effect on the quality of oil, but a few comparisons quickly disposed of it. The Texon's Big Lake well produced oil from a depth of 8,523 feet that tested 52.8 gravity at first and later on the gravity increased to 56 degrees. The Continental's well at Walden produced crude that tested 52 gravity. The two wells, more than a thousand miles apart, produced practically the same grade of crude, one coming from 5,790 feet above sea level and the other 3,090 feet above sea level.

Atmospheric pressure and humidity have some effect on operations in high altitude. The rare and exhilirating atmosphere of high altitudes has the effect of keeping drillers and oil field workers in better spirits, as a rule. There is a reason for it. Normal atmospheric pressure at sea level is 14.7 pounds to the square inch and at Denver is 12.2 pounds. It is even less up where most of the wells mentioned are drilling. A driller coming from the Santa Fe Springs Field in California to Denver will have 2.5 pounds less pressure on every square inch of his body. It makes him feel as if a load had been lifted from his body, and that is what actually takes place. The humidity of the atmosphere at Denver, mean annual, is 53 per cent. In other words, the air has only a little more than half of the moisture which it can hold. At Amarillo the humidity is 62, at Los Angeles 70, and at Oklahoma City 70. Humidity does not affect the temperature, but it has an important effect on the sensitiveness of the human body as to temperature. That is why men in high altitudes do not feel the cold as severely as in lower altitudes.

The rare atmosphere and less humidity of higher altitudes affects to some extent the generation of power for drilling oil wells. One operator estimated that the horsepower was reduced by at least 25 per cent, especially on gasoline and fuel oil engines. J. W. Ward, who is in charge of the drilling of the Transcontinental's well in Dolores County, Colorado, said that while they found drilling conditions at that altitude are quite similar to those at lower altitudes, they did have some difficulty when they first started the operation in getting enough power from the engine. The company is using a Franklin 90-horsepower sea-level rating engine and when some difficulty was experienced in getting power from it, a special factory representative came out to help them. After some experimentation, it was found that by using a special mixture of moisture with the fuel, better results were obtained. He also confirms the statement that the men found no difficulty in working at that altitude and, in fact, found it quite exhilirating.

Difficulties in Drilling

Cold weather, rain and snow, frozen water lines, bad roads over which to haul supplies and the tendency of metal to become brittle and break easily are among the principal difficulties encountered in drilling in high altitudes. Late in the fall the drilling reports begin to tell of operations being suspended to bury water lines. That, along about December 1, the reports begin to say that wells are shutting down for the winter. Last January, or February, less than half a dozen wildcats were drilling in Wyoming and these were in the more favored localities as to weather conditions. Some drilling rigs are almost hidden from sight in winter by the enormous drifts of snow. Last winter the crew at the Transcontinental's Glade well was able to continue work until January, but when it went out, there were 3 feet of snow at the well. Drilling usually is resumed about June 1. At Rico, in Dolores County, the nearest point to the Glade well for which records are available, an average of 153.8 inches of snow has fallen each year for the past 14 years. It does not take much of a wind to blow the snow into drifts and obliterate the bunk houses entirely from view. The Midwest's well at Buffalo Creek, which is the highest drilling operation in Colorado, closed down early in December and the crew did not go in until April. Along the Gulf Coast in Texas, water lines can stay on the surface, or be buried just enough to get them out of the way, and deliver water the year round, but in the mountain regions it is different. Sometimes the water is brought from creeks 4 or 5 miles away and when the lines begin to freeze up, the trouble begins. Some water lines have been buried 5 and 6 feet deep and still were caught by the frost. The winters are not always the same. At Walden, where the Continental's "ice cream" well is located, the snowfall is not so bad, only an average of 52.9 inches per year for the past 20 years, but the weather gets rather cold. The highest temperature reported there was 94° and the lowest 39° below zero. The last killing frost usually comes about July 6 and the first in the fall about August 21. Just a little more than a month between them.

Mush 136° Below Zero

There is a natural tendency among drillers to stay on the job as long as possible when winter approaches in an

FIRST FIVE MONTHS 1930 ESTIMATES OF REFINERY GASOLINE AND COMPARISONS WITH PREVIOUS YEARS

(Barrels of 42 U. S. gallons)

(Note: Figures for April, 1930, and prior are from Bureau of Mines. May, 1930, has been estimated.)

	Production (1)	Imports (2)	Stocks: Total (3)	Stocks: Increase or decrease (4)	Exports (5)	Domestic demand (6)	Domestic and exports (7)	Inc. over same period of previous yr.: Domestic (8)	Inc. over same period of previous yr.: Domestic and exports (9)	Inc. over same period of previous yr.: Exports (10)
1930—			43,115,000							
January ..... Total	36,133,000	1,079,000	49,661,000	+6,546,000	5,458,000	25,208,000	30,666,000	+11.53	+12.53	+17.38
Daily average	1,165,000	34,800		211,200	176,100	813,100	989,200			
February ..... Total	33,500,000	953,000	53,217,000	+3,556,000	4,840,000	26,057,000	30,897,000	+14.41	+16.09	+26.11
Daily average	1,196,400	34,000		127,000	172,800	930,600	1,103,400			
March ..... Total	37,196,000	1,369,000	55,228,000	+2,011,000	6,057,000	30,491,000	36,548,000	+10.90	+13.18	+26.24
Daily average	1,199,700	44,200		64,900	195,400	983,600	1,179,000			
April ..... Total	37,679,000	1,319,000	54,422,000	—806,000	5,731,000	34,073,000	39,804,000	+ 6.42	+ 8.61	+23.81
Daily average	1,256,000	44,000		26,800	191,000	1,135,800	1,326,800			
May ..... Total	39,000,000	1,768,000	53,375,000	—1,047,000	4,953,000	36,862,000	41,815,000	+ 8.05	+ 6.22	— 6.64
Daily average	1,258,100	57,000		33,800	159,800	1,189,100	1,348,900			
First five months, 1930	183,502,000	6,488,000		+10,260,000	27,039,000	152,691,000	179,730,000	+ 9.84	+10.83	+16.73
Daily average	1,215,200	43,000		67,900	179,100	1,011,200	1,190,300			
			33,066,000							
First five months, 1929	170,972,000	2,783,000	44,648,000	+11,582,000	23,164,000	139,009,000	162,173,000	+16.37	+15.53	+10.76
Daily average	1,132,300	18,400		76,700	153,400	920,600	1,074,000			
			33,316,000							
First five months, 1928	144,172,000	2,034,000	38,230,000	+4,914,000	21,048,000	120,244,000	141,292,000	+10.35	+10.90	+14.18
Daily average	948,500	13,400		32,300	138,500	791,000	929,600			
			39,023,000							
First five months, 1927	134,103,000	2,296,000	48,859,000	+9,836,000	18,319,000	108,245,000	126,564,000			
Daily average	888,100	15,200		65,100	121,300	716,900	838,200			

effort to complete the wildcat before they have to shut down. Sometimes this results in a well coming in under circumstances that try men's souls. An instance is the Continental's discovery at Walden, the highest producer. The first winter was bad enough. For week after week the thermometer hovered around 35° below zero. Operations went from bad to worse and before long the frost in the steel caused the casing and casing hooks to break. Finally the crew gave up entirely and closed down for the winter. Work was resumed the next spring and the well found the pay on December 16 when the weather was at its worst. The temperature ranged around 20° below zero and the wind blew like a gale. Then it was found when the well came in that it was producing a frozen mush that had a temperature of 136° below zero. Putting the well under control was a job. The oil was so cold it stuck to one's fingers and froze them in two or three seconds. A drop on the bare flesh burned like a hot coal. One man pulled off his glove and to his surprise his finger nails came with it. At the time it was almost impossible to get into the park. However, the railroad company finally managed to break a way through the drifts with a rotary snow plow, a heavy locomotive and two coaches.

When the wells begin to close down for the winter, the companies make plans for having watchmen in charge. These men have some interesting experiences and are so used to cold weather and deep snows that they range over a large territory for news and to keep from expiring from lonesomeness. One of these is D. L. Fix, winter watchman at the Midwest Refining Co.'s Gray River test in Lincoln County, in western Wyoming. Along with those at other camps, he sends in periodical reports on weather conditions, etc. George H. Jaques, general superintendent of the producing department, receives a stream of correspondence from the men. Fix is somewhat of a philosopher and writes in considerable detail. In one letter to Mr. Jaques, he says: "It has been very cold here for the past two weeks and two different mornings I noted the mercury down to 50° below and for several days it lingered around 40° and 45° below zero. Several reports in the valley gave 51° and 54° below and I may have missed noting the coldest period on the thermometer." Another of Fix's letters was published in the Midwest Review, from which the following extract is taken:

As Told by Mr. Fix

"I'm down in the valley (Etna P.O.) again for mail and it looks like an early spring is here for this country," says Fix. "There was only about 2 feet 6 inches of snow at the well when I left. The dugways on the road have not slid in at the present date as they did last year and I believe very little road work will be required in order to reach the well when the snow is gone unless more rock and dirt slides come later. I snowshoed or ski'ed over to Jackson, Wyoming, about 10 days ago. The absence of snow near Jackson surprised me as there was 7 feet of snow at the divide between Little Grey's River and Snake River and also quite a lot of snow at the mouth of Bailey Creek. The trip is 40 miles across the mountains from the well.

"The government ranch people at Jackson were just finishing their last day of elk feeding for the season when I arrived there and had about 6,000 elk on the feed grounds. Another band of 2,000 elk were being fed about 12 miles south of Jackson. I am sending kodak pictures of the two Nelson girls who accompanied their brother skiing across country February 28 last to Bailey Creek to see if their father, who was trapping there during the winter, was alive and well. Am also inclosing a picture of the crew of the camp, taken the day we shut down, December 21. The Nelson girls are believed to be the only white women to have crossed the divide in winter. They were lost in a storm on the divide for a whole day and night without shelter."

Snowstorms and blizzards drop out of the sky so suddenly in some areas and are so severe that they become a real menace to the lives of any who may be caught in them. In many parts of western Wyoming where wildcats have been drilled are shelter houses along the route where provisions for food and fire have been left for any wayfarer who might be caught. These shelter houses have saved lives on more than one occasion.

PANHANDLE FIELDS

(Continued from Page 70)

bbls.; total depth 2,690 feet. Fain & McGaha Oil Corp.'s No. 27 Waggoner, top of pay 2,273 feet; initial production 230 bbls.; total depth 2,310 feet. Grayback Development Co.'s No. 4 Smith-Waggoner, top of pay 2,670 feet; initial production 120 bbls.; total depth 2,690 feet. Lido Oil Co.'s No. 6 Waggoner, dry and abandoned; total depth 2,750 feet. The Texas Company's No. 6 Waggoner, top of pay 2,372 and 2,389 feet; initial production 40 bbls. in 14 hours; total depth 2,396 feet.

Young County

Atlantic Oil Producing Co. and Christie's No. 3-B Jarnigan, top of pay 2,522 feet; initial production 300 bbls.; total depth 2,540 feet. Brazelton and others' No. 1 Larimore, oil sand 694 feet; initial production 185 bbls.; total depth 709 feet. Bullington-Lee & Pendleton's No. 8 Boone, dry and abandoned; total depth 555 feet. C. W. Clark's No. 1 Hargroves, dry and abandoned; total depth 808 feet. Cooper & Hamilton's No. 1 Crain, dry and abandoned; total depth 1,019 feet. Elliott & Alexander's No. 1 Jeffery, dry and abandoned; total depth 854 feet. V. L. Grisham's No. 1 Proffett, dry and abandoned; total depth 750 feet. Halmock Oil Co. and others' No. 6 Carpenter, dry and abandoned; total depth 900 feet. R. H. Helm's No. 1 Proffett, dry and abandoned; total depth 763 feet. Holbrook & Woods' No. 1 Keith, dry and abandoned; total depth 820 feet. T. F. Hunter and others' No. 4 Bloodworth, dry and abandoned; total depth 1,115 feet. Independent Oil & Gas Co.'s No. 1 Larimore, oil sand 692 feet; initial production 360 bbls.; total depth 710 feet. Independent Oil & Gas Co.'s No. 2 Larimore, oil sand 693 feet; initial production 225 bbls.; total depth 708 feet. King Royalty Co. and Heydrick's No. 3 Carpenter, oil sand 846 feet; initial production 35 bbls.; total depth 871 feet. George Mollenkoph's No. 2 Larimore and others, dry and abandoned; total depth 736 feet. E. Remington's No. 5 Remington, oil sand 682 feet; initial production 300 bbls.; total depth 690 feet. E. R. Riggs' No. 8 Larimore and others, oil sand 692 feet; initial production 220 bbls.; total depth 706 feet. River & Omohundro's No. 5 Keith, oil sand 556 feet; plugged back to 569 feet; initial production 8 bbls.; total depth 740 feet. Roeser & Pendleton, Inc.'s No. 1 Ragland, dry and abandoned; total depth 3,858 feet. Robertson Drilling Co.'s No. 1 Howard, dry and abandoned; total depth 954 feet. N. Rosenbaum and others' No. 1 Belknap Coal Co., dry and abandoned; total depth 725 feet. Shappel Oil Co.'s No. 1 Tatum, dry and abandoned; total depth 702 feet. Underwood Drilling Co.'s No. 1 Kerr, dry and abandoned; total depth 1,252 feet. Wo-Mac Oil Co.'s No. 1 Peters, oil sand 727 feet; initial production 13 bbls.; total depth 734 feet. Wo-Mac Oil Co.'s No. 9 Stephens-Roach Co., oil sand 714 feet; initial production 55 bbls.; total depth 735 feet. Wooten & Reed's No. 3 Fisher, dry and abandoned; total depth 650 feet.

RANGER DISTRICT COMPLETIONS

Week Ending June 28

Brown County

Duffey and others' No. 1 Hill, dry and abandoned, total depth 1,375 feet. Greene Production Co.'s No. 8 Davis, dry and abandoned, total depth 1,315 feet. S. B. Herring's No. 13 Kellar, dry and abandoned, total depth 1,142 feet. Kewanee Oil & Gas Co.'s No. 27 Hickman, top of pay 1,293 feet, shot with 35 quarts at 1,301-25 feet, initial production 25 bbls.; total depth 1,327 feet. McCarter and others' No. 1 Favor, dry and abandoned at 1,142 feet. Metcalf and others' No. 1 Beck, dry and abandoned, total depth 1,251 feet. Phillips Petroleum Co.'s No. 12 Newsome, dry and abandoned, total depth 1,355 feet. Elms and others' No. 1 Park, dry and abandoned, total depth 1,304 feet. E. L. Smith Oil Co.'s No. 1 Pugh estate, dry and abandoned, total depth 1,306 feet.

Callahan County

Goodrum and others' No. 2 Williams, dry and abandoned, total depth 1,113 feet. Humble Oil & Refining Co.'s No. 1-B Kennard, gas sand 1,350 feet (formerly completed June 11, 1930, for initial production of 4,000,000 feet of gas), second completion June 22, 1930, initial production 15,000,000 feet of gas, total depth 1,353 feet. McCowan & Richardson's No. 1 Cutbirth, dry and abandoned, total depth 712 feet.

Coleman County

McDonald, Campbell and others' No. 1 Weaver, dry and abandoned, total depth 1,875 feet. Prairie Oil & Gas Co.'s No. 1 Kellar, gas sand 1,531 feet, initial production 2,217,600 feet of gas, total depth 1,540 feet. Tower & McKenna, Inc.'s No. 1 Love, dry and abandoned, total depth 2,620 feet. Atlantic Oil Production Co.'s No. 4-B Overall, dry and abandoned, total depth 2,685 feet. Lamb and others' No. 1 Phillips, dry and abandoned, total depth 1,166 feet. Meredith & Benton's No. 2 McCulloch, gas sand 2,085-90 feet, oil sand 2,090-2,101 feet, plugged back to 2,099 feet, initial production 30 bbls. oil and 7 bbls. of water. Oklahoma Oil Co.'s No. 8 Garnett, oil sand 1,466 feet, shot with 10 quarts 1,465-72 feet, initial production 12 bbls., total depth 1,472 feet.

Eastland County

Golden Rule Oil Co.'s No. 1 McClelland, lake sand 3,685-92 feet, initial production 9,680,000 feet of gas, 650 pounds rock pressure, total depth 3,764 feet. William Richards' No. 1 Stroebel, total depth 1,195 feet, temporarily abandoned.

Palo Pinto County

Atlantic Oil Production Co.'s No. 2 Stuart, gas sand 1,838, initial production 9,730,000 feet of gas, total depth 1,853 feet. Hynds and others' No. 1 Dalton, dry and abandoned, total depth 2,372 feet.

Shackelford County

Hart & Gist Production Co.'s No. 1 Sammons, dry and abandoned, total depth 493 feet.

Stephens County

Arrowhead Oil Co.'s No. 6 Post, top of pay 1,805 feet, initial production 20 bbls., total depth 1,955 feet.

Throckmorton County

Moore and others' No. 1 Crump, dry and abandoned, total depth 1,296 feet.

PENNSYLVANIA GAS MEN HOLD CONVENTION

(Continued from Page 32)

not bake any more. Each year a larger proportion of our customers live in apartment houses. More of us are eating in restaurants.

"These trends away from the use of gas for cooking in the home are more pronounced in the large cities using manufactured gas. It has also been felt in the natural gas territory. With our natural gas customers it requires a careful analysis to distinguish this trend because of the gas used for house heating Here again we have a changing load. Not many years ago we tried to drive house heating from our lines with advertisements and advice to use coal for main house heating. The effects of this advice on our sales have been felt from that time to this, in spite of the fact that most of our natural gas companies in this region have turned about face and have been going after house heating business aggressively for three or four years. The trend which started with our unfortunate idea that we were not going to be able to take care of house heating loads has continued to make itself felt. Our own company believes that we have reached the lowest point of our house heating sales and that, from this time on, our house heating sales will start to increase. The falling off the past two years has been considerably less than in previous years.

"Many of our companies at one time made enormous sales to large industrial concerns because of an abundance of gas and cheap production. An increase in costs generally, drove much of this business from our lines. Most of us realize that we are no longer going to get this kind of business on the basis of the cheapness of our product alone.

"We are on a better basis than formerly. The type of industrial sales which we have now is entirely different from what was enjoyed several years ago. Gas is not used because of low price alone. Refinements of control and better finished products through scientific utilization mean that we have a steadier and more permanent load than previously."

Other papers read included: "Need of Current Accounting Data," by E. B. Nutt of the Standard Oil Co., Pittsburgh; "Safety," by E. J. Kreh of the Philadelphia Co., Pittsburgh; "Progress in Use of Gas for Househeating and Industrial Use," by W. H. Locke, vice president, United Natural Gas Co., Oil City; "Progress in Meeting Winter Peak and Caring for Summer Surplus," by J. G. Montgomery, Jr., superintendent and chief geologist, United Natural Gas Co., Oil City; "Employe Education," by C. E. Hinkley, chief engineer, United Natural Gas Co.; "Industrial Gas Sales," by F. B. Jones, Equitable Gas Co., and P. V. Kline, Peoples Natural Gas Co.; "Extensions," by T. H. Kendall, Equitable Gas Co.; "Office Meter Charts," by J. Lowe, Hope Natural Gas Co., and "Engineering Courses at State College," by Edward Steidle.

NOMINATIONS MADE FOR NEW A.G.A. OFFICERS

The nominating committee of the American Gas Association will present the following names for election at the annual meeting of that organization in Atlantic City, N. J., October 13-17: For president, Clifford E. Paige, vice president, Brooklyn Union Gas Co., Brooklyn, N. Y.; for vice president, R. W. Gallagher, president, East Ohio Gas Co., Cleveland, Ohio; for treasurer, W. J. Welsh, president, New York & Richmond Gas Co., Staten Island, N. Y.

Directors, two-year terms: Walter C. Beckjord, vice president, Boston Consolidated Gas Co., Boston, Mass.; J. D. Creveling, associate manager natural gas and gasoline division, Henry L. Doherty & Co., New York, N. Y.; Raymond, Cross, president, Ohio Fuel Gas Co., Columbus, Ohio; Henry L. Doherty, president, Cities Service Co., New York, N. Y.; Oscar H. Fogg, vice president, Consolidated Gas Co. of New York, New York, N. Y.; Samuel Insull, Jr., president, Midland United Co., Chicago, Ill.; F. A. Lemke, secretary and treasurer, Humphrey Co., Kalamazoo, Mich.; A. E. Peirce, president, Central Public Service Corp., Chicago, Ill.; and Arthur Stockstrom, secretary, American Stove Co., St. Louis, Mo.

The following members have been nominated by section nominating committees to serve as section officers for the next association year: Accounting section: Chairman, John I. Blanchfield, Brooklyn Union Gas Co., Brooklyn, N. Y.; vice chairman, William A. Doering, Boston Consolidated Gas Co., Boston, Mass. Commercial section: Chairman, E. R. Acker, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y.; vice chairman, Samuel Insull, Jr., Midland United Co., Chicago, Ill. Industrial gas section: Chairman, D. W. Chapman, Peoples Gas Light & Coke Co., Chicago, Ill.; A. J. Peters, Consolidated Gas Co. of New York, N. Y. Manufacturers section: Chairman, E. S. Dickey, Maryland Meter Works, Baltimore, Md.; vice chairman, David B. Kahn, Estate Stove Co., Hamilton, Ohio. Publicity and advertising section: Chairman, Donald M. Mackie, Commonwealth & Southern Corp., Jackson, Mich.; vice chairman, R. E. Haas, Columbia Gas & Electric Corp., New York, N. Y. Technical section: Chairman, R. G. Griswold, Cities Service Co., New York, N. Y.; vice chairman, I. K. Peck, Midland United Co., Chicago, Ill.

DEATH OF SIR F. W. BLACK, NOTED BRITISH OIL MAN

The death is announced from London of Sir Frederick W. Black, aged 67, formerly managing director of the Anglo-Persian Oil Co. and a director of Steaua Romana (British), Ltd. As British director general of munitions during the war he visited the United States in 1917 and came into intimate contact with leaders in the oil industry. The notice of his death in the London Oil and Colour Trades Journal says: "He was very proud of the fact that he was an 'Oklahoma Driller'," having been invited by the oil well drillers to join their organization. He was well known for his work with the British Institution of Petroleum Technologists, and it is recalled that at the annual dinner two years ago he humorously said he aspired to be the first oil poet of the Empire, and forthwith recited three verses of his own composition, based on a statement made by Dr. Gustav Egloff at the London Fuel Conference to the effect that there was enough potential motor fuel in view to supply the world's need for 3,000 years. The first two verses were:

Sir Frederick W. Black

Said Egloff: "Don't worry!
There'll be oil-stuff enough
For 3,000 years, if you mine it."

Said Dunstan and Kewley:
"Then the chemists quite truly
With their still will 'crack' and refine it."

He was president of the institution from 1919 to 1921, and chairman of the Standardization Committee. Last year, when Dr. A. E. Dunstan was elected president, Sir Frederick took over the duties of honorary editor of the institution's journal.

A.S.M.E. APPROVES ACTIVITIES OF MID-CONTINENT OIL SECTION

For some time past members of the A.S.M.E. in the Mid-Continent section have been petitioning the central body for power and funds to carry on work in the petroleum division of that society in a practical way.

At a conference of representatives of standing committees of the society with members of the staff held in Washington, D. C., recently a resolution of the committee on local sections was endorsed recommending that the society appoint a committee to investigate the activities of the petroleum industry and formulate a program of procedure.

As a final result of this committee's work the executive committee ratified this resolution, and a committee consisting of Joseph W. Roe (professional division), H. R. Westcott (local sections), and W. R. Webster (technical committee) was appointed. This committee made a report as follows:

Committee's Report

The committee unanimously recommends:

A—That the responsibility for the professional activities of the A.S.M.E. in the petroleum field should be concentrated.

B—That this responsibility should rest with the petroleum division.

C—That the petroleum division, with the Mid-Continent section through its representatives as provided below, shall recommend to the president an advisory committee, to be appointed by council, or its executive committee, which shall have direct access to council for recommendations.

This advisory committee may contain representatives of other standing committees of the society, technical and industrial leaders of the petroleum industry, and other organizations and industries interested.

This advisory committee shall be appointed annually so long as the need exists.

The advisory committee should:

1. Advise the petroleum division executive committee in the formulation and execution of its program of activities.

2. Aid in securing co-operation of other bodies, and

3. Help in co-ordinating the program with those of other agencies of the society and outside.

Mid-Continent Representation

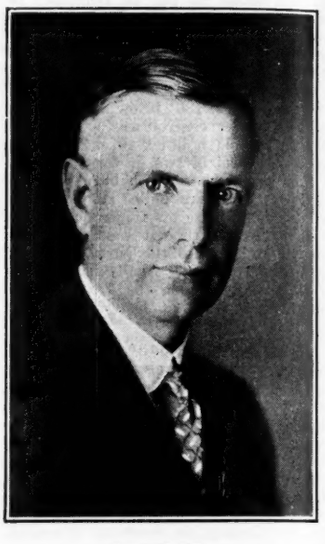
D—That the chairman of the Mid-Continent section shall be an ex-officio member of the petroleum division executive committee with vote. A working majority of the petroleum division executive committee shall for the present be from the Mid-Continent section.

The executive committee has also appropriated a special contingency fund to be used by the petroleum division executive committee to further their work between this time and October 1, when they are to make report to the council and submit budget for further funds for the next fiscal year of the society.

Ernest Hartford, assistant secretary of the A.S.M.E., is in Tulsa for the purpose of assisting in every way possible in organizing the work of the petroleum division for the summer and it is tentatively planned to employ a consulting engineer to direct a field investigation of power units at drilling wells.

GRIFFIN VICE PRESIDENT OF OKLAHOMA PIPE LINE

Paul Griffin, for 11 years in the service of the Oklahoma Pipe Line Co., has been made vice president of that organization. Mr. Griffin, who was born in Smethport, Pa., and did his first oil field work in Pennsylvania, migrated to the Mid-Continent territory 23 years ago, being employed at first in the tanking department of the Prairie Oil & Gas Co. In 1909 he took a position as clerk under David C. Stewart, then general superintendent of the Oklahoma Pipe Line Co. Later he was transferred to the accounting department.



Paul Griffin

Mr. Griffin was made secretary of the company about 1920 and four years later was made treasurer. He retains the office of treasurer along with the vice presidency. The company prior to the appointment of Mr. Griffin, had had no vice president since the elevation of Edward H. Leroux to the presidency in 1914.

TEXAS PIPE LINE LAW BEING PUT INTO EFFECT

AUSTIN, Tex., July 1.—First steps toward applying the new common purchaser and pipe line oil law have been taken by the railroad commission in substituting in the Howard-Glasscock Field in 15-day "nominations" by purchasers for the former fixed maximum proration limit for production.

At hearings under way in the capitol the proposal is being considered to substitute a similar purchase nomination basis for the 22,000-bbl. voluntary proration limit on the Darst Creek Field of Guadalupe County.

F. C. Sealey, chairman of the Darst Creek advisory proration committee, secured the hearing. R. D. Parker, chief state oil and gas supervisor, said the proration adjustment for Darst Creek will be considered essentially a question of production proration but the elements of proration of market outlet will be taken into consideration.

The present storing of oil in open earthen pits at the Darst Creek Field will be stopped, Mr. Parker announced.

REESER ON RADIO

President E. B. Reeser of the American Petroleum Institute has accepted an invitation of the Columbia Broadcasting System, Inc., to deliver a radio address as one of the Columbia "Romance of Industry" series of talks designed to acquaint the public with the problems of American industries. President Reeser will speak Saturday evening, July 19, at 7:15 p. m., Eastern Standard Time. He may be heard through WABC, W2XE, New York, and 32 other stations of the Columbia chain.

WEST TEXAS FIELDS

(Continued from Page 69)

quarts 3,554-3,633 feet; initial production before shot 350 bbls.; initial production after shot 481 bbls.; total depth 3,632 feet. Humble Oil & Refining Co. and others' No. 8 York, top of pay 3,660 feet; shot 120 quarts 3,659-3,720 feet; initial production 100 bbls. through 2½-inch choke; testing; total depth 3,720 feet. Simms Oil Co.'s No. 2 University, top of pay 3,592 feet; initial production 50 bbls. per hour (estimated); total depth 3,693 feet.

Glasscock County

Kirby Petroleum Co.'s No. 3 Phillips, top of pay 2,145 feet; initial production 1,200 bbls.; total depth 2,300 feet.

Pecos County

Cardinal Oil Co.'s No. 9 Torborg, top of pay 320 feet; total depth 432 feet; plugged back to 385 feet; initial production 15 bbls. Mauch & Kruger's No. 1 Holmes, dry and abandoned; total depth 2,630 feet. Simms Oil Co.'s No. 6-A Smith, top of pay 1,710 feet; shot 20 quarts 1,788-1,820 feet; initial production 35 bbls. in 13 hours; total depth 1,877 feet. Southern Crude Oil Purchasing Co.'s No. 7-A Tippett, top of pay 331 feet; initial production 60 bbls.; total depth 400 feet. Southern Crude Oil Purchasing Co.'s No. 10-A Tippett, top of pay 345 feet; initial production 196 bbls.; total depth 400 feet. California Oil Co.'s No. 21 Yates, top of pay 1,248 feet; initial production 115 bbls. per hour; total depth 1,399 feet.

Winkler County

Shell Petroleum Corp. and others' No. 8 Scarborough, top of pay 2,982 feet, initial production 39 bbls.; total depth 3,391 feet.

Runs Through Trunk Lines

Company and location—	Prod.
Atlantic, Houston	2,683
Gulf, Ranger	42,868
Humble, San Angelo	28,250
Humble, Station "A"	47,848
Illinois, Del Rio	25,366
Magnolia, De Leon	13,993
Pasotex, El Paso	13,021
Shell, Healdton	34,745
Shell, Houston	23,003
Texas, Houston	6,972
Total	238,749

Runs to West Texas Refineries

Amarillo Ref. Co., Pyote	888
Big Spring Ref. Co., Big Spring	1,502
Burford Ref. Co., Pecos	5,160
Bluebonnet Ref., Wickett	None
Cosden Ref. Co., Big Spring	9,469
Col-Tex Ref. Co., Colorado	6,500
Great Western Ref., Big Spring	3,164
Humble Oil & Ref., McCamey	6,976
Mid-Tex Ref. Co., Midland	None
Richardson Ref. Co., Big Spring	None
Tonkawa Ref. Co., Pyote	1,439
Wickett Ref. Co., Wickett	150
Total	35,248

Tank Car Shipments

Fox & Thorsen from Mertzon	92
Landreth from Crossett	None
Thomas & Brann from Grant City	150
Orient from Hurdle	90
Southern Crude from Wickett	23,306
Total	23,638

Total daily average distribution	297,635
Total daily average production (including Lea County, New Mexico)	319,583
Daily average from storage	21,948

SAFETY MEETING AT DALLAS

FORT WORTH, Tex., June 30.—Sixteen delegates of the North Texas chapter of the Petroleum Council met at the Baker Hotel, Dallas, Tex., June 26, M. D. Gannon, safety director of the Southern Crude Oil Purchasing Co., Fort Worth, president of the North Texas chapter, presiding.

C. W. Hillman, assistant safety director of the Southern Crude Oil Purchasing Co., Fort Worth, read a paper outlining the needs for protecting the workmen, using compulsion, if necessary, to make them adopt usage of protective goggles and devices.

Following a discussion of improved methods of shooting wells, C. L. Hightower, safety director of the Texas Pacific Coal & Oil Co., Thurber, is preparing a paper pertaining to safety requirements in shooting.

Mr. Coolidge of the Atlantic Oil Producing Co., Wink, Tex., suggested that a West Texas chapter be organized, and at an experimental and test meeting to be held in the Winkler Field, July 15, such an organization may be formed. E. J. Deweese of the Bureau of Mines, Bartlesville, Okla., will probably be in charge of the two or three-day meeting in the Winkler Field which will make experiments and tests to determine the proper protection measures to adopt against gassing of eyes in the fields. The sulphur gas in some of the West Texas fields causes considerable trouble, and the companies desire methods of overcoming loss of time, and trouble to the workmen from gassed eyes.

GULF MARKET UNCHANGED

HOUSTON, Tex., July 1.—There was virtually no change in the general Gulf Coast refinery market at the opening of the week. Fuel oils continued available in more or less limited amounts with no tendency toward weaker prices. The relief from the extreme tight situation has had no effect on the market quotations. Pale and red oils the past week were unchanged with a fair amount of material moving and steady prices, no definite trends either for a stronger or weaker situation being evident. Gasolines, the most uncertain product, continued little changed in going prices.

PIPE LINE APPOINTMENTS

Effective July 1 the following appointments apply for the Indiana Pipe Line Co., the Buckeye Pipe Line Co., Northern Pipe Line Co. and New York Transit Co.; R. J. Beatty, freight traffic manager; O. L. Nahouse, purchasing agent. These appointees succeed J. L. Gibbons, deceased.

LEGISLATION FOR UNIT OPERATION PASSED UNANIMOUSLY BY SENATE

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., June 30.—Legislation to permit unit operation by lessees in government oil fields for better meeting the waste problem through co-operative effort was passed by the Senate June 26.

The bill, which amends the general leasing act of 1920 and is supported by the Secretary of the Interior, was called up in the Senate by Senator Walsh (Dem.) of Montana, and after a brief explanation by him passed unanimously.

The report on the measure explains its purpose as follows:

Committee's Report

This legislation was requested by the Secretary of the Interior and is essential for meeting an emergency. The Government is a large owner in the Kettleman Hills oil and gas field in California, where the present waste of natural gas reaches the daily total of 400,000,000 feet, even under a temporary agreement which limits the number of active wells.

A co-operative plan for meeting this waste problem more effectively is now being formulated by a representative committee of operators, but the lessees of the government land can not enter such a plan without amendment of the general leasing law. Without participation by these government lessees, occupying 30 per cent of the area of this very rich field, no co-operative plan can be operative.

The proposed amendments would permit such participation but in nowise compel it. No change would be made in any government leases, past or future, from the terms of the general leasing law, except as lessees in a single pool may wish to come under a co-operative plan, duly approved by the Secretary of the Interior as in the public interest. Flexibility in the law is provided in order to meet new conditions, but no new provision or condition is mandatory upon government leases.

The need of economic regulation of oil and gas field activity is now well recognized as imperative and the Federal Oil Conservation Board has recently, in its report to the President, indorsed the unit operation plan as the most promising method of effectively promoting conservation and economy for the benefit of all parties in interest, private owners and lessees, Government owner and lessees, and the general public now so dependent upon products of the oil and gas fields of the country.

The unit operation plan is co-operative and not competitive and the drilling and operating program disregards all property lines within the pool, seeking economy in expenditures and large recovery of resources rather than the usual haste and consequent waste. Necessarily, a longer life of the field being thus promoted, it is essential that the government lessees have the assurance of a tenure beyond 20 years; hence the amendment to Section 17 is absolutely necessary.

Need Recognized

Discretionary power is also needed by the Secretary of the Interior in adjusting certain operating requirements of existing law to meet the new conditions of substituting an engineering program of rational well distribution for the present offsetting, which is unduly expensive, but worse than that, almost criminally wasteful. The net result of this more rational plan is expected to be larger profits to the government lessees and larger royalty returns to the Government as lessor.

The first and second provisos under Section 27 of the act already establish a precedent for combination of interests for co-operative action in constructing and operating refineries and transportation facilities, so that the insertion immediately thereafter of the proposed amendment to this section would seem more logical and especially advantageous in making it plain that the new plan is similarly subject to the restraint of trade prohibition contained in the final proviso of this section of the existing law.

Urgently Needed

While the unit plan is in force in several states on privately owned land and there has proved eminently successful, in no field is it more urgently needed or are greater benefits reasonably to be expected than at Kettleman Hills, which is regarded as one of the world's greatest oil and gas fields.

The Government's interest here is already measured by the present royalties exceeding $1,000 a day, from the two wells on government land, six wells only being allowed to produce under existing conditions. Last year the government royalties from this field were $237,909. If all the gas from these government wells could be sold, instead of by far the greater part wasted into the air, the daily revenue to the Government would be $500 more than at present.

This committee is informed that the ultimate returns to the Government from these Kettleman Hills leases under rational development and operation without waste are conservatively estimated at hundreds of millions of dollars. Even more deserving of national concern is the enormous waste of natural gas, which must hasten the day of shortage, however large the reserve.

Plainly, the wise administration of this government property is a major item in the conservation policy, and it is to meet the existing situation in the Kettleman Hills Field that the Public Lands Committee regards immediate action on these two amendments as warranted.

It is believed that ample provision has been made to protect the public interest, but to permit further consideration of this innovation in public land legislation it is provided that the act expires two months after the convening of the next session of Congress, thus giving time for reconsideration of the measure. In the meantime, however, prompt action by the Secretary of the Interior may be required to meet the needs of the Kettleman Hills situation, and these amendments would give him the necessary discretionary power.

PLAN TO BASE TEXAS PRODUCTION ON REQUIREMENTS OF REFINERIES

HOUSTON, Tex., June 30.—When the Texas pipe line law, which became effective June 20, is in full operation, crude oil prices are likely to become stabilized through the removal of cheap crude from the market.

During past years, prices of refined oils, such as gasoline and lubricating oils, have been dependent upon posted price of crude. The situation is now reversed, and in the future crude prices will depend upon those paid for the finished products.

Under the new law, an advisory committee to the Texas Railroad Commission is to ascertain exact requirements of each refinery for a period of six months in advance. The total refinery requirements thus being established, will be submitted to the Railroad Commission, which will order curtailment of production in the State to actual requirements.

With production held within actual market demand, there will be no surplus oil on the market, and the inducement to refiners to run to capacity will be removed.

Dave Donoghue of Fort Worth, Tex., technical advisor to the committee of six working with the Railroad Commission, sent the following questionnaire to all companies affected by the law:

On June 20, 1930, there will go into effect the law recently enacted by the Texas Legislature known as the "Common Purchaser Bill." At the request of the Railroad Commission a joint committee representing producers, pipe lines and purchasers of crude oil is assembling data for its recommendations for the impartial enforcement of this law. We urgently request and thank you to furnish the following information not later than the 20th instant, and covering the operations in Texas of your company and its affiliates:

1. What quantity of crude do you nominate for your requirements, from fields in Texas, by grade, daily average by months for the remainder of the year 1930 (or for such period as you may desire to nominate):
   (a) Your company purchases?
   (b) Oil transported for others?
2. What were your daily average purchases by grades and fields, from Texas fields, for the month of May, 1930?
3. What quantity and grade of crude did you bring into Texas during the month of May, 1930, from
   (a) Other states (name)?
      For your own account?
      Transported for others?
   (b) Foreign countries (name)?
      For your own account?
      Transported for others?
4. What is your total storage capacity in Texas, as of June 1, 1930, amount and location?
5. What are your total stocks, as of June 1, 1930, quantity, grade and location?
6. What stocks do you hold for others as of June 1, 1930, quantity, grade and location?
7. What was the available room in your storage as of June 1, 1930?
8. What are your excess or surplus stocks, by grade, as of June 1, 1930?
9. What quantity and grade of crude stocks do you consider necessary to carry in order to conduct your business in an economical manner?

LIST DISTRIBUTORS OF NEW LIQUEFIED GAS

(Continued from Page 141)

Francisco, Calif. Trade name—"Shellane." Sale of product started August 1, 1929. Territory served: California, Arizona and Nevada.

Shell Petroleum Corp., 13th and Locust Sts., St. Louis, Mo. Trade name—"Shellane." Sale of product started January, 1929. Territory served: Minnesota, Wisconsin, Iowa, Illinois, Indiana, Michigan, Oklahoma and Texas. Branch offices in Chicago, Ill., Madison, Wis., Austin, Minn., and Lansing, Mich.

Skelly Oil Co., Eldorado, Kans., Trade name—"Skelgas." Sale of product started May 19, 1928. Territory served: Arkansas, Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Oklahoma and Wisconsin. Branch offices in Chicago, Ill., Des Moines, Iowa, Kansas City, Mo., Minneapolis, Minn., Omaha, Neb., St. Louis, Mo., and Tulsa, Okla.

The Sloan & Zook Co., Kane, Pa. Trade name—None. Sale of product started about 1916. Territory served: Wholesale distributor in Pennsylvania and western New York.

Standard Gasoline Co., 225 Bush St., San Francisco, Calif. (See Standard Oil Co. of California, under distributors, for other data.)

Viking Gasoline Corp., Charleston, W. Va. (See Viking Realty Co., under distributors, for other data.)

Part II—Distributors

The Bluflame Gas & Range Co., Toledo, Ohio. Sale of product started October, 1929. Other data not submitted.

Carolina Suburban Gas Co., Greensboro, N. C. Trade name—"Philgas." Sale of product started June, 1928. Territory served: North Carolina, southern Virginia and northern South Carolina.

Citigas Corp. of New Jersey, 2931 Atlantic Ave., Atlantic City, N. J. Trade name—"Citigas." Sale of product started March 5, 1929. Territory served: Atlantic, Cape May, Cumberland, Salem, Gloucester and Camden Counties, New Jersey. Maintains four branch warehouses.

Delco-Light Co., Dayton, Ohio. Trade name—"Delcogas." Sale of product started July 16, 1929. Territory served: All states east of the Rocky Mountains. Maintains six warehouses and 35 district offices.

Economy Bottled Gas Co.,* Miami, Fla.

Fuelite Natural Gas Corp., 705 Main St., Waltham, Mass. Trade name—"Fuelite." Sale of product started 1924. Territory served: All of New England and part of New York. Branch office at 33 Dwight St., Springfield, Mass.

Grand Rapids Welding Supply Co., Inc.,* Grand Rapids, Mich.

Hi-Heat Gas Co.,* 21 East 40th St., New York, N. Y.

Imperial Gas Co., Long Beach, Calif. Trade name—"Rockgas." Sale of product started November 25, 1925. Territory served: California, Oregon, Washington, Nevada, Arizona, New Mexico, British Columbia and Hawaiian Islands.

Northwestern Blaguas Co., Hampden Ave. and Charles St., St. Paul, Minn. Trade name—"Blaugas." Sale of product started July, 1921. Territory served: Minnesota, Wisconsin, Illinois, North Dakota, South Dakota and Michigan.

The Nugas Corp. (also Bradford Gasoline Co.), Bradford, Pa. Trade name—"Nugas." Sale of product started August 17, 1922. Territory served: New York, New Jersey, Pennsylvania, Connecticut, Massachusetts, New Hampshire, Vermont, Rhode Island, Maine, Georgia, Delaware, Maryland and District of Columbia.

The Ohio Valley Oxygen Co., 946 Kenyon Ave., Cincinnati, Ohio. Trade name—"Philgas." Other data not submitted.

Omaha Blaugas Co., Inc., 28th and Boyd Sts., Omaha, Neb. Trade name—"Blaugas." Sale of product started December, 1927. Territory served: Iowa, Nebraska, Kansas, Missouri, parts of western Illinois and eastern Colorado.

Pittsburgh Thermoline Co., 45 South 20th St., Pittsburgh, Pa. Trade name—"Thermoline." Sale of product started 1918. Territory served: East of Mississippi River. Branch offices at Philadelphia, Pa., Cleveland, Ohio, Greenwich, Conn., Indianapolis, Ind., and Chicago, Ill.

The Protane Corp.,* Erie, Pa.

Rockgas Products Co.,* Emsworth, Pittsburgh, Pa.

Standard Oil Co. of California, 225 Bush St., San Francisco, Calif. Trade name—"Standard Flame." Sale of product started December 15, 1928. Territory served: California, Nevada, Arizona and parts of Utah and Oregon.

Suburban Gas Co., Belleville, N. J. Trade name—"Suburban Gas." Sale of product started January 1, 1929. Territory served: All of New Jersey, north of a line from Camden to Asbury Park, and Orange and Rockland Counties of New York.

Super-Fuel Co., 36th St. and 13th Ave., Tampa, Fla., P. O. Box 2172. Trade name—"Philgas." Sale of product started January 1, 1928. Territory served: Florida.

Tirrill Gas Machine Corp.,* 50 Church St., New York, N. Y.

Universal Bottled Gas Co.,* Rochester, N. Y.

Vapyre Corp.,* Pleasantville, N. Y.

Viking Realty Co., Charleston, W. Va. Trade name—"Tru-Gas." Sale of product started February 6, 1928. Territory served: Ohio.

*Data regarding operations not submitted.

DAN DANCIGER RECOVERING

Dan Danciger, of the Danciger Oil & Refining Co. of Tulsa, was injured in an interurban accident while riding as a passenger between Hutchinson and Wichita, Kans. Mr. Danciger is improving and expects to leave the hospital at Halstead, Kans., in a few days.

NORTH EXTENSION OF VAN POOL IS THOUGHT TO BE NEAR LIMITS

By L. E. Bredberg

FORT WORTH, Tex., June 30.—Humble Oil & Refining Co.'s No. 1 E. E. Carroll, located 150 feet from the east and 150 feet from the south of Carroll's 95-acre tract, in the William Daniel Survey, which was reported last week as being an expected producer and a possibility of a mile and a quarter extension to the Van Pool in Van Zandt County, was completed this week for an initial production of 861 bbls. Oil sands were picked up at 2,821-25 and at 2,928-32 feet, and it was drilled to a total depth of 2,932 feet. The well was tested on a 24-hour gauge; for the first six hours it was produced on a one-half inch choke and for 18 hours on a three-eighths inch choke; gas was estimated at 320,000 feet.

Although this well was completed as a good commercial producer, production is not expected to be found much farther north, as Imperator Oil Co.'s No. 1 Carter, just 2,850 feet from the E. E. Carroll tract was completed as a dry hole after failing to get the Woodbine sand. This test was carried to a total depth of 3,504 feet; however, production may still be extended east of the Humble well.

Three offset locations have been made, The Texas Company offsetting to the east on its 171-acre tract; Humble Oil & Refining Co. to the south, which is on a 2,014-acre tract, and Pure Oil Co. to the southeast on its 48 acres.

The Pure Oil Co. will build a short gathering line to this extension well, and crude oil from the well will be handled by it. Production is now going to storage.

The completion of the Pure-Van Pipe Line Co.'s 211-mile 10-inch electrically welded line, which is being built from Pure Oil Co.'s tank farm in the Van Pool to its refinery at Smiths Bluff, 12 miles from Beaumont, is expected within 10 days. Six new pump stations have been built along the new line, and are located at Bullard, Rusk, Diboil, Woodville and Nona Mills. With all six pump stations working, 40,000 bbls. of oil can be put through the line daily, and with the storage tanks that are on the ground in the Van Pool, crude oil in this field can be handled in a satisfactory manner.

Shell Petroleum Corp.'s No. 1 Stephens, located in the La Rue block in eastern Henderson County, is to be abandoned. Much interest was centered around this test at one time, but when it failed to make a producer after running high little attention was given to it. It was to be carried to a depth of 6,000 feet to test the Trinity sand if salt was not encountered before reaching this depth, but salt was found between 4,400-50 feet. Total depth is 4,694 feet.

McElreath & Suggett of Fort Worth have staked a location for a wildcat in Smith County. Contract depth of this well is 4,000 feet. Location is 200 feet from the north and 200 feet west of Gilliam 78-acre tract in the J. C. Robertson Survey.

EAST CENTRAL TEXAS

Boggy Creek	3,590
Cedar Creek	30
Currie	307
Hill County	35
Mexia	4,157
Minerva	568
Nigger Creek	180
Powell	5,791
Richland	220
Thrall	40
Van	25,151
Wortham	815
Total	40,884
Total week ending June 21	41,296
Decrease	412

EAST CENTRAL TEXAS COMPLETIONS

Anderson County

Humble Oil & Refining Co.'s No. 1 J. C. Collier, Pecan Gap, 3,110-3,225 feet; dry and abandoned 4,400 feet.

Navarro County

Tidal Oil Co.'s No. 1 Longbotham, dry and abandoned; total depth 3,302 feet.

Van Zandt County

Humble Oil & Refining Co.'s No. 1 E. E. Carroll, Pecan Gap 1,556-1,664 feet; oil sand 2,821-25, 2,928-32 feet; initial production 681 bbls. first 24 hours, 6 hours one-half-inch choke, 18 hours three-eighths-inch choke, 320,000 feet of gas; total depth 2,932 feet. Pure Oil Co.'s No. 5 J. T. Thompson, initial production 538 bbls.; total depth 2,940 feet. Pure Oil Co.'s No. 1 R. L. Wells & Tunnell, initial production 645 bbls.; total depth 2,942 feet. Pure Oil Co.'s No. 1 Swain, initial production 611 bbls.; total depth 2,956 feet. Sun Oil Co.'s No. 1 Wallace, initial production 778 bbls.; total depth 2,952 feet. Pure Oil Co.'s No. 2 Bolin, initial production 363 bbls.; total depth 2,929 feet. Pure Oil Co.'s No. 1 Bracken, initial production 418 bbls.; total depth 2,945 feet. Pure Oil Co.'s No. 4 Wells, initial production 393 bbls.; total depth 2,940 feet; The Texas Company's No. 1 White, initial production 703 bbls.; total depth 2,939 feet. Pure Oil Co.'s No. 1 Peters, initial production 173 bbls., total depth 2,953 feet.

EAST CENTRAL TEXAS WILDCATS

Week Ending June 30

ANDERSON COUNTY

Navarro, Sun and Humble's No. 1 Gardner, 1,150 ft. from N and 150 ft. from E of 147.5-acre tract in M. M. Salizar Sur. ..... Drlg. 3,116 ft.

Sun Oil Co.'s No. 2 Bowers & Maier, 150 ft. from S and 140 ft. N of SW, 1,450 ft. SW of SE lines of tract ..... Drlg. 1,746 ft.

HENDERSON COUNTY

H. E. Ashburn et al's No. 1 T. E. Barry, center of Barry's 55-acre tract in A. York Sur. ..... Shut down 2,425 ft.

Chapman's No. 1 Cade, 1,662 ft. from N and 3,294 ft. from W of J. B. Dorsey Sur. ..... Shut down 3,100 ft.

Cranfill & Germany's No. 1 Clara C. Stow, 2,203 ft. from N and 471 ft. from S of Guadalupe Acosta Sur. ..... Drlg. 40 ft.

George Pace et al's No. 1 Mrs. Sarah Anthony, 273 ft. N and 132 ft. W of SE cor. of S. Anthony 632-ac. tract, Jose W. Battvan Sur. ..... Derrick.

Shell's No. 1 Stephens, 760 ft. from S. 330 ft. from E lines I. D. Owens Sur., S. T. Stephens 118-ac. tract ..... T. D. 4,694 ft.; pdugging back.

HUNT COUNTY

Branson et al's No. 1 West, 350 ft. N, 350 ft. W of W 60-ac. tract, Jas. Rooces Sur. ..... Drlg. 1,474 ft.

KAUFMAN COUNTY

Sowell et al's No. 1 Ables, 1,200 ft. from SE, 1,000 ft. from SW of Ables' 233-ac. tract, Elizabeth Ables Sur. ..... Drlg. 628 ft.

NAVARRO COUNTY

Bateman Oil Co.'s No. 1 McGowan, 250 ft. from S and 3,000 ft. from E in Morris Webb Sur. ..... Drlg. 2,400 ft.

Navarro Oil Co.'s No. 2 Mathews, 3,600 ft. from S and 1,140 ft. from W of Smith Sur., 3 miles E of Dawson ..... T. D. 1,450 ft.; fishing.

Wheelock's No. 1 Castles, 150 ft. from S and W of 31.5-ac. tract in Abner Mathews Sur., 1 mile N of Eureka ..... Shut down 94 ft.

Young et al's No. 1 Farmer, 700 ft. from S and 400 ft. from E of 110-ac. farm in F. Finley Sur. ..... Drlg. 400 ft.

RAINS COUNTY

Everett & Morrison's No. 1 Franklin, 640 ft. from S and E of 75-ac. tract in John Christian Sur., 6 miles SE of Emory ..... Spudded and shut down.

Owens & Sloan's No. 1 Hill, 150 ft. out of NW cor. of 150-ac. tract, T. McMahon Sur. ..... Drlg. 3,940 ft.

RUSK COUNTY

Mass et al's No. 1 Mathews, 2,244 ft. from N, 4,356 ft. from E, Dalines Cartinas Sur. ..... Rigging up.

SMITH COUNTY

McElreath & Suggett's No. 1 J. Gilliam, 200 ft. from N and 200 ft. from W of Gilliam 78-acre tract, J. C. Robertson Sur ..... Moving in material.

Owens & Sloan Oil Co.'s No. 1 Starnes, 846 ft. along W lines of John Waller Sur. from NE cor. of J. O. Dillard Sur., and 80 ft. E at right angles to W line of J. Waller Sur. ..... Shut down 1,322 ft.

Sutton et al's No. 1 W. D. Hammond, 150 ft. out of SW cor. W. D. Hammond tract in Jas. Reed Sur. ..... T. D. 3,824 ft.

Winona O. & G. Co.'s No. 1 Freeman, 150 ft. from S, W of 89-ac. tract in A. J. Lagrone Sur., 4 miles SE of Winona ..... Derrick.

VAN ZANDT COUNTY

L. R. Barton's No. 1 Wamble, 300 ft. from S and W of 100-ac. tract in Pleasant Young Sur. ..... Derrick.

Century Oil Co.'s No. 1 L. A. Stewart, 1,200 ft. N, 132 ft. E of SW cor. of A. J. Hershley Sur. ..... Drlg. 3,776 ft.

E. L. Chapman's No. 1 Charles Wolverton, 215 ft. from N, 60 ft. S of NE cor. of Wolverton 10-ac. tract, William James Sur. ..... Drlg. 180 ft.

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-ac. tract, John Wright Sur. ..... Will start up.

Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E lines of Morris 160-ac. tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler ..... T. D. 3,071 ft.; will abandon.

Grand Saline Oil Co.'s No. 1 Carns, 300 ft. from S and W of most westerly SW cor. of 588-ac. tract in S.P.R.R. Sur., Abstract 887, 4½ miles N of Grand Saline ..... Shut down 3,520 ft.

Hartt Oil Co.'s No. 1 Dr. L. M. Cox in A. C. Night Sur., 1,785 ft. N of S line and 524 ft. E of W line ..... Derrick.

B. P. Hervey's No. 1 Foster & Smith, 150 ft. S and 150 ft. W of 104-ac. tract, Margaret Neal Sur. ..... Drlg. deeper; rigging up.

Howard & Dooley's No. 1 Elliott 188-ac. tract in W. H. Bundy Sur. ..... Derrick blew down.

Priest et al's No. 1 Blewitt, 175 ft. NW and SW of SE cor. of NW 84-ac. tract, E. Porter Sur. ..... T. D. 1,510 ft.

Pure Oil Co.'s No. 2 Leonard, 732 ft. from N and 200 ft. from W, Mund Gross Sur. ..... Drlg. 2,646 ft.

Pure Oil Co.'s No. 1 Browner, 250 ft. from N and 200 ft. E of most SW cor. John Walling Sur. ..... Coring 2,794 ft.

Pure Oil Co.'s No. 1 Clark, 300 ft. from N and 175 ft. from E of A. D. I. P. Clark 9-ac. tract, M. Gross Sur. ..... Waiting on cement to set; T. D. 2,754 ft.

Pure Oil Co.'s No. 1 Davis, 127 ft. from S and 200 ft. from W of 139-ac. tract, Nacogdoches County School Land ..... Derrick.

Pure Oil Co.'s No. 1 Miller, 328 ft. from N and 177 ft. from E of 5-ac. tract in Mund Gross Sur. ..... Waiting on cement to set; T. D. 2,770 ft.

L. B. Pruitt et al's No. 1 T. J. Luther, 50 ft. E, 170 ft. from N of SW cor. of T. J. Luther 32-acre tract, M. Gross Sur. ..... Rigging up.

Short et al's No. 1 B. C. Andrews, 330 ft. N and 160 ft. E of NE cor. of J. P. Farley 60-ac. tract in Margaret Neil Sur. ..... Shut down 3,535 ft.

Texas Chief Oil Co.'s No. 1 Foster, 600 ft. E of W line and 600 ft. N of S line of W. P. Foster's 151-ac. tract in F. Montgomery Sur., 7 miles south of Canton ..... T. D. 940 ft.

Van Zandt Oil & Dev. Co.'s No. 1 Robinson, located NE cor. of Y'Barbo Sur., 4 miles E of Grand Saline ..... T. D. 4,205 ft.; will take core.

WOOD COUNTY

Big Indian Oil Co.'s No. 1 R. J. King, 450 ft. W of E line and 150 ft. N of S line of King's 109-ac. tract in Wm. Barnhill Sur. ..... Drlg. 4,135 ft.

Pace et al's No. 1 Dickey, 1,200 ft. from E and 800 ft. from S of Dickey 120-ac. tract, J. O. Clark Sur. ..... T. D. 4,150 ft.

CALIFORNIA PROBLEMS ARE BEING ADJUSTED

(Continued from Page 149)

contract settlements, $87,454; mortgage, $5,000; total, $3,230,916.

Controlling interest in Galena Oil Corp. is held by American Republic Corp., which acquired from the Rockefeller Foundation and certain other interests their holdings of Galena Oil Corp. capital stock. The acquisition was made on the basis of one share of Interstate Natural Gas Co. capital stock held by American Republics Corp. for each four shares of Galena. On May 15 stockholders of Galena Oil Corp. were offered a similar exchange, subject to acceptance by June 25

Plan of reorganization of Galena-Signal Oil Co. of Pennsylvania, under which Galena Oil Corp. was incorporated on October 1, 1928, was declared operative on December 13, 1929. On April 14, 1930, the Court of Common Pleas of Venango County, Pennsylvania, ordered dissolution of the old company.

PARAGON APPROVES SALES

NEW YORK, July 1.—Stockholders of the Paragon Refining Co. have approved the sale of the company's assets, exclusive of the cash and accounts and notes receivable and majority stock of Valvoline Oil Co., to the Union Trust Co. of Pittsburgh. Union Trust is believed to be acquiring the Paragon properties for Gulf Oil Corp. at a reported price of $10,000,000.

Paragon stockholders also approved the sale of 32,228 shares of Valvoline Oil common stock to E. W. Edwards, president of the Paragon and Valvoline companies, at $199.59 per share, or $6,433,157, which is the same price at which Paragon purchased the stock several months ago.

Holders of Paragon Refining will be given an opportunity to buy all or part of the Valvoline stock which Mr. Edwards is purchasing, at the same price at which Mr. Edwards is buying the block.

WALLACE C. FRANKLIN RESIGNS FROM TIDAL

Wallace C. Franklin, vice president and counsel for the Tidal Oil Co., has resigned from that company, the resignation taking effect June 30.

Mr. Franklin had been connected with the Tidal Oil Co. for 13 years, and in that time became one of the leading figures in every movement for the good of the industry in the Mid-Continent Field. He was a member of the American Petroleum Institute's committee on world conservation of petroleum, and is chairman of the Mid-Continent Oil and Gas Association's subcommittee on conservation in the Oklahoma Field, known as the Franklin committee. He has for years been prominently connected with the Mid-Continent Oil and Gas Association in its numerous movements having to do with equitable taxation both federal and state.

Mr. Franklin has not announced his plans for the future any more than to say he intended to continue his residence in Tulsa.

EDGE WELL IN MT. PLEASANT FIELD ONE OF BEST RECENT COMPLETIONS

By Paul A. Elliott

MUSKEGON, Mich., June 30.—Another edge well in the Mount Pleasant Field of central Michigan proved to be one of the best recent completions as well as the only new well of the week. It was the E. Brown Development Co.'s No. 2 Grubb, Section 2-14n-3w, Chippewa Township, Isabella County, near the north edge of the field and on the same lease with another good well brought in last week. The other well was the G. Lee-P. Oil Co.'s No. 1 E. Grubb, SE SW SW, Section 2-14n-3w, Chippewa Township, and it made 300 bbls. initial in the Dundee topped at 3,555 feet. The new well made 512 bbls. initial, topping the Dundee limestone at 3,521 feet, the pay at 3,548 feet and finishing at 3,590 feet.

A number of other drilling wells in the field are near completion. The field is making about 7,000 bbls. a day and practically holding its own in production with new wells compensating for decreasing flow of the older producers.

Clare County

Operators interested in Clare County north of the Mount Pleasant Field received another disappointment when Charles Strange's No. 1 State, SE SW, Section 17-15n-1w, Jerome Township, Midland County, near the Clare County line, was reported a "duster" at about 4,000 feet.

Rock pressure of the Isabella Oil Development Co.'s No. 1 M. D. Keeler, NW NW, Section 10-16n-6w, Broomfield Township, Isabella County, 6 miles west of Mount Pleasant and about 14 miles west of the proven field, was taken this week and found to be 575 pounds. This well, completed as a 10,000,000-foot gasser in the Marshall formation at 1,325-32 feet on December 15, 1929, built up to a pressure of 400 pounds in one minute. It is now the center of a group of several new wildcats recently started.

Reported Dry

The Vestaburg Oil & Gas Co.'s No. 1 Alfred Anna, SW NE SE, Section 27-12n-5w, Richland Township, Montcalm County, between the Muskegon and Mount Pleasant Fields, was reported dry.

Ten new wells are drilling, rigging or moving in near the New York Petroleum Corp.'s No. 1 L. P. J. Marthey, SW SW SE, Section 19-15n-3w, Denver Township, Isabella County, which came in about three weeks ago as the largest wildcat completed in Michigan. Gibson, Johnson & Borden, Inc.'s No. 1 Lucius Cole, NW NE SW, Section 19-15n-3w, struck a large flow of gas in the Marshall formation but is being carried to the Dundee.

The Chartiers Oil Co.'s No. 1 Wesche, SE NW NW, Section 29-15n-3w, Denver Township, is being rigged up and permit for No. 2 Wesche, SW SW SW, Section 30-15n-3w, Denver Township, was another new one.

The Wittmer Oil & Gas Properties of Pittsburgh, Pa., took out a permit for No. 2 Smith and others, S half NW, Section 30-15n-3w, Denver Township.

The Ohio Producing & Refining Co., Michigan subsidiary of the East Ohio Gas Co., has started No. 1 Epple, SE SE, Section 19-15n-3w, a west offset to No. 1 Marthey.

The Gordon Oil Co.'s No. 1 Elmer Merihue, within the village limits of Leaton, SE SE, Section 19-15n-3w, Denver Township, is rigging up. The New York Petroleum Royalty Corp. has started drilling No. 2 P. J. Marthey, NW SW, Section 19-15n-3w, Denver Township, and is rigging up for No. 3 Marthey.

Other New Permits

Permits were granted for a well east of the Mount Pleasant Field in Grant Township, Iosco County, another for a well in the south central part of the State in Livingston County, and two in counties which lie between the Muskegon and Mount Pleasant Fields. The Iosco County well is Gibson, Johnson & Borden's No. 1 Robert H. Watts, C S half NW, Section 34-22n-6e. Arthur S. Storm's No. 1 Leslie M. Latson, W half SE, Section 8-2n-5e, Genoa Township, Livingston County, is the south central Michigan well. The others are the Mellon-Pollock Oil Co.'s No. 1 Elwyn H. Johnson, SE SW, Section 35-18n-10w, Lincoln Township, Osceola County, and Lewis D. Mehrtens' No. 1 Michael Baumann, NE SE SW, Section 21-14n-7w, Wheatland Township, Mecosta County.

Muskegon Field

The National Petroleum Corp.'s No. 1 Eadus, SE NE, Section 12-10n-17w, Laketon Township, was good for about 5 bbls. initial after being plugged back to 1,681 feet and shot. It had been drilled to 2,085 feet.

The Eureka Gas & Oil Co.'s No. 1 Fred A. Eadus, a short distance east but in the same quarter section, was reported making 15 bbls. in the upper Traverse at 1,684 feet.

The Lima Oil Corp.'s No. 8 Louis P. Haight, SW SW, Section 9-10-16, Muskegon Township, on the Muskegon River Flats, struck the lower Traverse pay at 1,858-64 feet and at 1,868 feet drilling was discontinued and the well tubed for a test. Six other wells are active in the field.

Allegan County

Another Allegan County wildcat well struck salt water instead of oil or gas in what was reported to be the Monroe formation at about 1,900 feet. It was the National Petroleum Corp.'s No. 1 Commissaris, NW NE NE, Section 9-4n-13w, Salem Township. Bell shale was encountered at 1,815 feet and the Dundee limestone was reported lacking. It is about the tenth Allegan County wildcat to be completed as a dry hole.

A show of oil was struck in the Swastika Oil & Gas Co.'s No. 1 Sands Lumber, SW NW, Section 6-21n-16w, Filer Township, Manistee County. The show was struck at about 1,831 feet.

AUTHORIZE SURVEY ON MOTOR FUEL INVENTORIES

(Continued from Page 142)

of the Highway Education Board of Washington.

Preparation of a uniform sign to be displayed appropriately by all signers of the Marketing Code who desire to use it was authorized. The contemplated sign will inform the buying public that the business of the refiner or marketer displaying the sign is conducted in accordance with the rules of the code.

Practically all of the directors who attended the monthly meeting also participated in the discussions of the Refining Division, at which the question of the unfavorable statistical position of gasoline came in for a thorough going over.

Directors attending the meeting were: C. B. Ames, The Texas Company, New York; E. R. Brown, Magnolia Petroleum Co., Dallas; J. S. Carroll, Johns-Manville, Inc., New York; W. N. Davis, Phillips Petroleum Co., Bartlesville; H. B. Earhart, White Star Refining Co., Detroit; W. S. Farish, Humble Oil & Refining Co., Houston; John L. Gray, Deep Rock Oil Corp., Tulsa; R. C. Holmes, The Texas Corporation, New York; W. M. Irish, Atlantic Refining Co., Philadelphia; L. L. Marcell, White Eagle Oil & Refining Co., Kansas City; Edgar L. Marston, Texas Pacific Coal & Oil Co., Fort Worth; D. J. Moran, Continental Oil Co., Ponca City; Frank Phillips, Phillips Petroleum Co., Bartlesville; E. B. Reeser, Barnsdall Corp., Tulsa; W. G. Skelly, Skelly Oil Co., Tulsa; Charles L. Suhr, Pennzoil Co., Oil City; W. C. Teagle, Standard Oil Co. of New Jersey, New York; J. C. Van Eck, Shell Union Oil Corp., New York; E. T. Wilson, Continental Oil Co., Denver; H. F. Sinclair, Sinclair Consolidated Oil Corp., New York; W. T. Holliday, Standard Oil Co. of Ohio, Cleveland; S. A. Guiberson, Jr., Guiberson Oil Investment Co., Los Angeles, and E. G. Seubert, Standard Oil Co. of Indiana, Chicago. Others present were W. R. Boyd, Jr., executive vice president A.P.I.; Lacey Walker, secretary and assistant treasurer A.P.I.; Fayette B. Dow, Washington, counsel A.P.I.; Paul E. Hadlick, secretary Division of Marketing, A.P.I. staff; J. D. Gill, Atlantic Refining Co., Philadelphia; F. A. Pielsticker, Skelly Oil Co., Eldorado, Kans.; J. W. Carnes, Sinclair Refining Co., New York; H. E. Klein, The Texas Company, New York; O. S. Ambrose, Tide Water Associated Oil Co., New York; C. F. Meyer, president Standard Oil Co. of New York; C. J. Barkdull, Standard Oil Co. of Indiana, Chicago, and J. H. Graham, Indian Refining Co., Lawrenceville, Ill.

PRESIDENT REESER SEES PROGRESS TOWARDS STABILIZING GASOLINE

NEW YORK, June 28.—While the gasoline statistical position remains unfavorable, the petroleum industry as a whole is making progress toward stabilization, said E. B. Reeser, president of the American Petroleum Institute, in a statement issued here this week. Mr. Reeser's statement follows:

"It is my opinion that the petroleum industry is in an unusually good position. Production and imports of crude oil in the United States, speaking as of the end of June, are approximately 300,000 bbls. per day less than at the end of June a year ago. Domestic consumption and exports of crude oil are approximately 100,000 bbls. per day greater than a year ago.

"There is no indication of a declining crude price structure in the Mid-Continent Field. Local conditions in some fields may require a readjustment, but we do not look for a general downward revision.

"This crude situation, of course, is the result of the production curtailment movement throughout the United States. It is being effected along the line suggested by the Economics Committee of the Federal Oil Conservation Board and there is every reason to believe it will continue throughout the year. Oklahoma, Kansas and California are almost 100 per cent in line and we have reason to believe that Texas will be in line within the next few weeks.

"Stocks of crude oil in the United States at the end of April were approximately 430,000,000 bbls. as compared with the peak of 434,000,000 bbls. at the end of September, 1929. Stocks at the end of June will be about 420,000,000 bbls.

"So far as the refining situation is concerned, there is no indication of a decline in consumption because of the depression. The increase in consumption of gasoline is fully up to our estimates of last fall. During the first four months of 1930 domestic consumption and exports increased 10.8 per cent over those of the like period of 1929, domestic consumption itself increasing 9.8 per cent and exports increasing 16.7 per cent. Comparatively, this is an enormous gain, considering the great increase of 1929 over that of 1928.

"We worked for at least two years on the crude oil situation before we accomplished general success in curtailment. The refining end of the business ran along on its own ideas and only at the American Petroleum Institute annual meeting at Chicago last December was a separate division made of the refining industry. We recognize the difficulty of curtailing the refinery output because refined products are very definitely in interstate commerce and no attempt to enter into an agreement is being made because of that.

"The Institute is attempting to educate refiners individually along the line that they do not need large stocks of gasoline. Nearly every company has ample facilities to meet the demands by running their plants on a demand basis. We have not made as much progress in this direction as we had hoped, but we do see a definite inclination toward adoption of an operating basis by individual companies, which will reduce the present abnormal stocks to a reasonable amount. Since June 1 the decrease in refinery stocks has been approximately 2,250,000 bbls., which is at a greater rate of decrease than for any like period.

"We have stabilized the production of crude oil and in my opinion refiners will see that stabilization is in their interest too and their companies individually then will curtail production of refined products."

DEATH OF C. A. DUKE

BRADFORD, Pa., June 28.—Charles A. Duke, pioneer operator in the Duke Center district, died at his home in that village on Friday. His father came to McKean County in 1868 and bought large tracts of timber land and established the town of Duke Center. When oil was discovered at Bradford the land became very valuable for oil purposes and when the Bradford Field was surveyed geologically the Duke Center district was found to be on the richest part of the 85,000-acre structure. The family retained much of the land originally purchased. Deceased was 62 years old. His mother and one brother survive.

CONTINENTAL BUILDS STORAGE

In connection with the erection of a refinery at Denver, Colo., the Continental Oil Co. has let contracts for the construction of 23 steel storage tanks. These tanks will have capacities up to 55,000 bbls. daily.

STANLEY STOUT KILLED

Stanley Stout, Abilene, Tex., well-known driller in the Permian Basin of Texas, died at Grand Island, Neb., June 25, from injuries sustained when a loose bailer fell upon him.

Oklahoma Production Curtailment Extended Another Three Months

OKLAHOMA CITY, Okla., July 1.—The Oklahoma State Corporation Commission ordered a continuance of the curtailment of production in Oklahoma to 650,000 bbls. a day at a meeting held on Monday, June 30. The order covered a three-month period. Producers in the several flush areas in Oklahoma had already agreed to the curtailment and the commission's order was made at their request in order to maintain production at refinery demand.

There was no change in the status of the Oklahoma City Pool, the maximum allowable being fixed at 25 per cent, subject to revision by the local operators' committee. At present the production, by agreement among operators and pipe line companies, is 16⅔ per cent. Should production in other state fields decline, the percentage for this field will be raised.

Fields allowed a 25 per cent open flow include the Asher-Wanette, Chandler, West Perry, Orlando and Township 20n-4w of southeastern Garfield County.

Fields given an open flow of 66⅔ per cent include Allen Dome, Bowlegs, Carr City, Earlsboro proper, Little River, East Little River, Marshall-Lovell, Maud, Mission, Sasakwa, Searight, old Seminole, East Seminole and St. Louis.

The east and south extensions of Earlsboro are prorated to 33⅓ per cent.

A.P.I. AND EXPOSITION

NEW YORK, June 30.—Directors of the American Petroleum Institute, meeting here this week, accepted the invitation of W. G. Skelly, president of the International Petroleum Exposition, to hold their regular monthly meeting in Tulsa during "show week" this year.

NORTH DOME, KETTLEMAN, COMMITTEE WIRES PROTEST TO WASHINGTON

LOS ANGELES, Calif., June 30.—Secretary Wilbur has decided to modify the North Dome agreement entered into by Kettleman Hills operators with the Government, and Continental Oil Co. will be authorized to drill three wells, No. 2-16, No. 2-20, and No. 2-24, to the Temblor sand. These are offsets to wells producing, or being completed as offsets to the Felix Oil Co. well drilled by Petroleum Securities Co.

The authority to drill does not include the right to place the wells on production, even though the offsets are producing. The latter are on fee acreage, the Continental on government permits.

"Unless and until there is some method of operation adopted for preventing further waste from the Kettleman Hills gas field," says the secretary's letter to William Reinhardt, chairman of the Kettleman Hills Committee, "every means at my command will be used to enforce Section 16 of the General Leasing Act."

Secretary Wilbur's stand on the amendment to the leasing act, whereby determination of development at Kettleman Hills shall be vested in the Secretary of the Interior, is also objected to by some operators.

The following telegram dispatched to the Secretary of the Interior and the respective chairmen of the Public Lands Committee of the United States Senate and House of Representatives indicates the position of many operators in the North Dome, where the Secretary of the Interior has been endeavoring to formulate a unit plan of development:

"Kettleman Hills North Dome Committee held meeting today, June 27, to consider the Colton bill. Regret was expressed that committee had not been given opportunity to comment on proposed legislation before enactment, which we understand will probably be within next day or two. Committee has no doubt of desirability of congressional action along the general lines outlined in the original draft of the bill, which is the only copy before us but which we understand has been amended. Committee greatly regrets the lack of time and opportunity to study the bill as it recognizes in the original draft at least two grave defects.

"On page 2, beginning line 18, provision is made for continuance of leases beyond period of 20 years until termination of unit plan. We believe continuation should be for life of the field. Again, on page 6, beginning line 15, provision is made for termination or the alteration of the unit plan in whole or part by the Secretary of the Interior at his discretion. We believe that this will not be acceptable to lessees and that the Government should be bound by a unit plan to the same extent as lesses and operators.

"Kettleman committee hopes that amendments covering these points will be incorporated in the bill before passage and that opportunity will be given it to comment on any future proposed legislation which would have a bearing on the proposed Kettleman unit plan." This telegram was signed by William Reinhardt, chairman Kettleman North Dome Committee. It is believed by some that unless consideration is given to these points that the proposed unit development plan will never become a factor, as there is enough antagonism already evident that anything further will prove fatal to desires.

CONTINUED GAIN IN GASOLINE DEMAND

(Continued from Page 28)

usual in a declining gasoline market jobbers have reduced their storage to a minimum. Cases are cited in which jobbers during May and June used their storage gasoline which under ordinary conditions would not have been withdrawn until July and August.

These jobbers apparently expect the market to continue low throughout the summer months and for that reason liquidated their inventories. With a firm market more buying is to be expected and low gasoline storage at bulk stations should aid the market throughout the remainder of the summer. Some sellers are predicting the 6½-cent gasoline market by the middle of July and a 7-cent market by August.

The foregoing are the favorable factors being pointed to by those hopeful for a recovery in the gasoline market during the summer months. Those of a more pessimistic trend also have plenty of ammunition in support of their contention that there will be little if any recovery in gasoline prices over the next several months. They point to the wide spreads between tank wagon and tank car prices which is bringing more and more price cutters into the retail market. The so-called "tank car stations" which are combination bulk and rental stations near railroads are increasing in importance and constitute a menace to the present tank wagon and retail structures unless refinery prices are improved. Others feel that crude oil price schedules may be reduced due to the low gasoline market and this situation is stressed by those who predict that the deflation period in the oil industry has not yet run its course.

Gasoline and Naphtha

With the low of the U. S. Motor market at 6 cents there was some improvement in the higher gravities. The 400 endpoint grade was available as low as 6¼ cents, 390 endpoint 6⅝ to 6¾ cents, 375 endpoint 7 to 7¼ cents and 350 and 360 endpoints 7¼ and 7½ cents. The slump in the natural gasoline market has made the latter grades more freely available.

The export business in the higher gravity gasolines in July for Oklahoma and other Mid-Continent refiners has not yet been placed. There will be a small movement on long time contracts made last year but the month-to-month purchases had not been placed up to Tuesday. As explained last week the Carter Oil Co. (Standard Oil Co. of New Jersey) one of the regular buyers of the past several months announced early in June that it would not make any purchases in July. It is assumed that one or more of the export buyers affiliated with the export association will make purchases but the quantity or price has not been announced.

This export business will be an important factor in the July market. Several companies have relied on the high gravity sales to export buyers to absorb from 10 to 50 per cent of their gasoline output and if this business is shut off in July it will mean they will have to change their operations and make more of the domestic grades. Rumors continue that the export association base prices at the Gulf Coast on both gasoline and kerosene are to be reduced during July. In this connection it is predicted that no large buying will develop until these reductions become effective.

Natural Gasoline

After a further slump last week natural gasoline prices were fairly firm the first of the week. Grade AA was available at a low of 5 cents, Grade A at 5¼ cents. Grade BB and the remaining grades slumped to a low of 4½ cents last week and were holding at that level Monday and Tuesday. The demand for naturals has improved with the lower prices.

Fuel Oils

It is a buyer's market in fuel oil. Prices vary with every sale dependent on the situation of the sellers. Some of the lower gravities have sold as low as 45 cents and this price is not as low as those obtained from middle western refiners quoting on a Group 3 basis. The higher gravities fortunately are not being freely offered as there is little demand.

Provided the industrial outlook for the fall is more favorable refiners are expecting an improvement in the fuel oil demand before the end of July. This is the dull period of the year as far as industrial consumption is concerned but buying for fall requirements generally start in July. Observers do not agree as to the outlook for the resumption of industrial activity in the Middle West centering in Chicago but many sellers are storing in anticipation of a better demand and higher prices later in the year.

Other Products

Kerosene has sold as low as 3¼ cents in North Texas and this on a competitive basis means 3⅜ cents in Oklahoma for northern shipment. The product in Oklahoma for specification material is generally quoted at 3⅝ to 4 cents. Unless the export demand improves, kerosene is another product which probably will have to wait 30 days before there is any appreciable increase in domestic demand.

There is fair demand for the better grades of furnace oil. This includes 32-36 zero, straw color gas oil for which buyers are paying around 2½ cents although the industrial grade of gas oil continues to be available at a low of 2⅛ cents.

Oklahoma refiners have not announced additional reductions in cylinder stock prices. They are faced with the competition of 26-cent bright stock from Pennsylvania plants and steam refined stocks around 12 cents. Price cutting is also general in neutral oils and the finished motor oils. The wax market in Oklahoma was inactive during the week despite the low prices.

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Late Fields

(Continued from Page 40)

The total depth of the well is 6,675 feet, in sand. The other well completed was the same company's No. 2 L. Trosper, SW cor. NW Section 12-11-3w. It made 494 bbls. of oil the first 14 hours and 50 minutes. The oil was found in Simpson sand at 6,375-6,475 feet.

Prairie Oil & Gas Co.'s No. 1 Reynolds, NE cor. SE NW Section 6-10-2w, Cleveland County, has been shut down at a total depth of 5,560 feet in shale. The operators plan to await the outcome of the adjoining tests before drilling deeper.

The new well of the J. A. Hull Co. and Phoenix Oil Co., No. 1 in the NE cor. SE SE SE Section 22-6-3, in the Wanette Pool in Pottawatomie County, was drilled deeper to 3,504 feet and made 581 bbls. in 18 hours. Wilcox Oil & Gas Co.'s No. 2 in the SW cor. NW SW Section 23-6-3, a new well, flowed 638 bbls. in 15 hours from sand at 3,486-3,509 feet.

Magnolia Petroleum Co. finds the Wilcox sand dry in the Konawa Pool. No. 1 Beaver, NE cor. NW SW Section 29-6-6, Seminole County, cored the Wilcox sand at 4,212-15 feet, found it dry.

NORTH LOUISIANA

SHREVEPORT, La., July 1.—Triangle Drilling Co.'s No. 2 Caskey, SE SE, Section 6-19-5, Athens district, of Claiborne Parish, 18 miles southeast of Homer production, is a 20,000,000-foot gasser in the top of the Trinity series at 4,339 feet in Oolitic lime. Rock pressure is around 1,800 pounds and the gasoline content runs 793 gallons per 1,000,000 feet of gas. It is producing through 2-inch tubing and is rated at 25,000,000 feet of gas minimum wide open through casing. It is located approximately 1½ miles north of the same company's No. 1 Kilpatrick in Section 70. The completion is regarded as the most important development in this territory since the Zwolle discovery. Standard Oil Co. of Louisiana and Louisiana Gas & Fuel Co. each own a third interest in the two wells and the 8,500-acre block surrounding, and while no definite plans for the immediate future have been settled upon, Triangle officials indicate a conference between the owners during the next day or two will result in a campaign designed to outline the limits of the productive area of the Sugar Creek structure, possibilities of which in the Nacatoch and Blosson horizons have already been explored and found.

Loring Oil Co.'s No. 5 Bowman-Hicks, in Section 34-8-12, Zwolle district of Sabine Parish, bailed dry with no show of oil or gas in 10 feet of lime, total depth 3,925 feet and will go deeper. Core of the last 10 feet made quite a show of oil and there was a little gas a week or so ago. Six and one-quarter-inch is cemented at 3,904 feet and drilling will continue.

FEAR DRILLING HAZARD AT OKLAHOMA CITY

CHICAGO, June 28.—The urgency of immediate adoption in Oklahoma City of every possible safety provision as a result of the oil well drilling within the city limits there was stressed at a conference of about 25 western managers here. The managers had before them the report of the National Board of Fire Underwriters on the situation.

Because of the need for immediate action a similar conference will be held in New York at the offices of the National Board of Fire Underwriters to acquaint the executives in the home offices of the companies in that territory with the hazard. A committee of western managers will go to New York for the conference.

In the conference here it was pointed out that as the drilling approaches the heart of the city the conflagration hazard increases. When a well was brought in recently houses over a large area were sprinkled with oil. The new wells are coming in under great pressure caused by gas, which adds considerably to the fire hazard, it was said.

There has been some talk that the companies would either raise their rates or withdraw from the city altogether, but it was declared that neither of these contingencies were discussed at the local conference. The discussion centered around the need for impressing upon the citizens of Oklahoma City the seriousness of the situation and the need for putting in every possible safeguard.

Many of the companies have been cutting down their line in Oklahoma City, but other companies, apparently not aware of the great hazard, have been taking over the risks. A higher degree of unanimity among the companies is expected to result from the New York conference.

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HYDROCARBON GAS AS SOURCE OF POWER

(Continued from Page 34)

are given in the table below. The analyses were carried out by condensation and fractionation of the gas at low temperature.

HYDROCARBONS CONTAINED IN NATURAL GAS
(In per cent)

Methane	85.7	65.8	41.4
Ethane	6.5	10.5	24.4
Propane	3.6	7.6	16.7
Butane	1.2	3.6	6.8
Pentane	0.5	1.6+	4.9
Hexane	Trace	1.0	1.2
Heptane	...	Trace	0.1
Carbon dioxide	0.3	0.7	0.7
Residue	2.1	9.1	3.8
B.t.u. per cu. ft.	1,131	1,270	1,755

These data do not by any means represent the composition of all natural gas. At times gas is found that is composed almost exclusively of methane. In other cases hydrogen sulphide or organic sulphur compounds are present. Gas containing more than 10 per cent of nitrogen has been found in some localities in Kansas and Texas, in fact, in the latter state gas has been produced in which there was so much nitrogen that it was incombustible.

Certain wells in Kansas, Colorado, Wyoming and California yield gases containing a large proportion of carbon dioxide. The Walden well in Colorado when brought in produced 32,000,000 cubic feet of gas per day, which contained enough carbon dioxide to manufacture 1,500 tons of "dry ice" (solid carbon dioxide). This tonnage of "dry ice" is six times the amount now used for refrigeration in the United States.

In certain regions of Kansas, Oklahoma and Texas the natural gas contains considerable amounts of helium. Analyses of a few of these unusual gases are given in the table below.

EXCEPTIONAL NATURAL GASES*

	Glasgow, Ky.	Lower Oriskany, Pennsylvania	Dexter, Kans.	McKittrick, Kans.	Walden, Colo.†
Methane	23.6	98.8	14.9	66.2	2.8
"Ethane"	69.7	0.3	0.4	1.0	1.9
Carbon dioxide	...	...	...	30.4	91.8
Nitrogen	3.8	0.1	82.7	2.4	2.9
Hydrogen sulphide	2.9	0.8	...	...	...
Helium	...	...	1.8	...	...
Oxygen	...	...	0.2	...	0.6

*Garner and Miller, the Oil and Gas Journal, June 16, 1927, 137.
†Francis, The Oil and Gas Journal, January 2, 1930, 81.

Gas in Oil Production

The first power use of natural gas is in crude oil production. Crude oil moves from the sand to the well and upward by reason of the pressure exerted by the gas associated with it. Moreover, gas dissolved in oil lowers its viscosity and surface tension, quickening its flow. It is stated that at 250 pounds pressure oil will absorb 250 cubic feet of gas per barrel, and that oil saturated with gas at 600 pounds pressure has a viscosity but 42 per cent as great as under atmospheric conditions. In the ground, because of the large amount of dissolved gas the oil may even approach the fluidity of kerosene. It is apparent that such gas-saturated oil will flow more readily than that containing little or no gas.

If gas escapes from an oil well without control it will leave the oil, instead of driving it to the surface of the ground. Hence, there will be an increase in the viscosity and surface tension of the oil, and a retardation of its flow. As a result the amount of oil recovered from the well will be less than that which would be obtained with controlled use of gas. The gas may even leave the oil in such quantity that the oil sand pores will be choked with gas and the flow of oil completely stopped. (Jamin effect.)

It is important that the amount of gas which leaves the well with the oil be as small as possible, in order to obtain the maximum quantity of petroleum from the oil sands. On theoretical grounds, Coleman, Wilde and Moore have calculated that if the flow of gas is restricted to 480 cubic feet per barrel of oil, about 50 per cent of the oil in the sand will flow from the well. If 1,200 cubic feet of gas per barrel of oil are permitted to escape, the recovery is but 20 per cent of the oil present, while if the gas flow is 23,000 cubic feet per barrel of oil, as it has been in at least one California field, but 3 per cent of the oil in the ground can be recovered by flowing.

The gas-oil ratio is kept low by flowing a well against back pressure. This pressure is obtained by causing the oil to pass through a restricted orifice, by maintaining pressure on the gas-oil separator, by using pumps with high fluid level, by proper size of tubing and by correct tubing depth. All wells cannot be handled alike. For each well there is a speed of production which will yield least gas and most oil, this rate depending upon the depth of the oil sand, the character of the oil, the pressure in the oil-sand reservoir and the original ratio of gas to oil underground.

Gas Lift

Another oil field use of natural gas is the bringing of the oil to the surface by the gas lift. The gas is compressed and forced down between the casing and tubing of the well. In part it dissolves in the oil, and in part mixes with it, carrying the oil to the surface. The use of the gas lift both increases the rate of production as much as four or five times and increases the volume of oil recovered. It has been estimated that between 40 and 45 per cent of the oil produced in the Seminole Field, Oklahoma, having a market value of $100,000,000, was obtained by use of the gas-lift method of oil recovery. The gas lift is not always an unmixed blessing, however. When water is present, the churning together of water and oil by the gas gives rise to tenacious emulsions, in some cases increasing the emulsion formation from 10 to over 50 per cent of the oil.

Repressuring

After gas has left an oil stratum, it cannot be pumped back and made to dissolve in the oil still below ground in the amount originally present. Nevertheless oil production is greatly aided by returning gas to the oil sands, a process known as "repressuring." Gas compressed to pressures ranging from a few hundred to 1,500 pounds per square inch or more, is returned to the oil sands by designated wells, while production is continued from other wells nearby.

In repressuring, from 5,000 to 20,000 cubic feet of gas per producing well per day is ordinarily pumped into the oil sand. Either "dry" gas, from which gasoline vapors have been removed, or "wet" gas may be used. The gasoline vapors in the wet gas appear to have a scrubbing action that removes oil from the sand grains. By repressuring an oil sand area the drop in pressure underground is checked. As oil production is roughly inversely proportional to the rate at which pressure drops in the oil producing formation, this process notably increases total flow of oil. Gains in total production of oil by repressuring have been reported of from 15 to 389 per cent.

Natural Gasoline

The vapors of pentane, hexane and heptane contained in some natural gases are undesirable constituents when the gases are transported, as they condense in the pipe lines and tend to clog them. Moreover, they have value when condensed to the so-called "natural" gasoline. Natural gasoline makes up 10 per cent of the motor fuel sold in the United States, and is produced at the rate of more than 1,500,000,000 gallons per year. Over 90 per cent of natural gas produced in the United States is passed through gasoline recovery plants.

Before natural gas is put to any use

above ground it should be freed from hydrogen sulphide. This substance occurs in the gas in amounts ranging from a negligible quantity to over 10 per cent. If not removed it gives rise to unpleasant fumes when the gas is used for domestic purposes, it corrodes pipe lines, destroys the efficiency of natural gasoline absorbers, and injures gas engines and compressors. The hydrogen sulphide can be removed by scrubbing the natural gas with a solution of sodium carbonate. By another process free sulphur is recovered commercially as a by-product from the purification.

Transportation of Gas

Natural gas is carried throughout the United States by a system of widely distributed pipe lines. The total length of these lines is estimated at over 55,000 miles, and their value makes up a large share of the present investment in the natural gas industry of $1,900,000,000.

The supplying of natural gas to communities near oil and gas producing areas has been actively going on in the United States for over 50 years. But within the last few years the area served by natural gas has been greatly increased. Since the year 1925 a number of pipe lines from 100 to 400 miles in length and 3 to 22 inches in diameter have been constructed to carry natural gas by billions of cubic feet per year to cities far from the gas fields. The map shows the gas pipe line network extending over the country. In 1930 an expenditure of $250,000,000 for increased distribution facilities for natural gas is expected.

One of the greatest of these pipe line projects is the 22-inch line completed in 1928 from Amarillo, Tex., to Denver and Pueblo, Colo., a distance of 340 miles. The line required eight months to construct, and with the gas lands secured to assure a lasting gas supply the total cost was $25,000,000. The line rises from 3,800 feet above sea level at Amarillo to 7,000 feet at Denver. It has a capacity of 100,000,000 cubic feet of gas per day and needed 81,000 tons of pipe for its building. To supply these Colorado cities 350,000 acres of gas lands were secured, on which are 28 wells at present producing, with an open flow capacity of 625,000,000 cubic feet per day. Other wells have been drilled but are now shut off.

Although this pipe line terminates in the heart of the Colorado coal producing region, enough industrial contracts were secured before the line was built to assure its success, including one with a steel company which itself mines one-third of the coal of the State.

Other Lines

Another notable gas line extends 430 miles from the great Louisiana gas fields to St. Louis, Mo. It also is of 22-inch diameter. The material for its construction weighed 115,000 tons and required 4,435 freight cars to transport it to the scene of operations. The pipe line will carry 100,000,000 cubic feet of gas per day at an initial pressure of 350 pounds.

Birmingham, Ala., and Atlanta, Ga., are now reached by a 450-mile gas line from Louisiana. A line nearly 400 miles in length, able to handle a peak load of 250,000,000 cubic feet per day, serves Kansas City. Salt Lake City, Utah.; Cincinnati, Ohio; Cleveland, Ohio; Buffalo, N. Y.; Louisville, Ky.; New Orleans, La.; Los Angeles and San Francisco, Calif., and Pittsburgh, Pa., are other of the great cities of the United States served by natural gas.

A number of old oil pipe lines were recently purchased by a gas company for the purpose of supplying Philadelphia with natural gas, and a proposal is being considered to supply New York City with this fuel.

In California natural gas is rapidly eliminating manufactured gas. More than 5,000 miles of natural gas pipe line has been laid in that State in the last 10 years and at present a single company has 700 miles of gas pipe line planned and under construction. When this is completed 98 per cent of the gas consumption in California will be natural gas.

Over 1,600 miles of gas pipe line radiate from the gas fields of the Texas Panhandle, and plans are under consideration for a gas line from that region to Chicago, a distance of 1,000 miles.

The construction of these pipe lines required not only large amounts of capital, supplied because of faith in the future supply of natural gas, but also engineering skill of highest order. Developments in pipe manufacture, producing pipe of high tensile strength, new pipe-laying machinery, and advances in welding practice so that in many cases welding could be done automatically, have greatly contributed to the success of these projects. Aerial photography has assisted in the selection of rights of way and the planning of operations.

The difficulties met in the field have been tremendous. In one Texas line a way had to be blasted through 15 miles of solid rock. In the Amarillo-Denver line it was necessary at one point to cross a canyon 600 feet deep at an angle of 45 degrees. In the southern states swampy and flooded ground presented great difficulties. Crossing streams, traversing mountains, hauling material over poor roads to districts far from railroads, and securing water in arid districts are other problems constantly encountered.

No definite figures of the quantity of natural gas potentially available in the United States can be secured, and estimating is somewhat hazardous. But the building of this great distributing system at a cost of hundreds of millions of dollars clearly indicates that the industry is confident that natural gas is available in staggering quantities, and will be a source of power for many years. It is stated that the two gas fields which now supply San Francisco are capable of producing 4,000,000,000 feet of gas daily for 75 years.

Industrial Use

Approximately 80 per cent of the natural gas produced in the United States is put to industrial use, while the remainder fills domestic needs. The largest consumers of gas are the producers of oil, who operate with gas engines for drilling and pumping, and compressors for recovering natural gasoline. Petroleum refining, generation of electricity and carbon black manufacture also account for large amounts of gas, as is shown in the table below:

CONSUMPTION OF NATURAL GAS IN 1928*

	Cubic Feet
Domestic use	320,877,000,000
Industrial Use—	
Oil fields use	573,698,000,000
Carbon black	175,137,000,000
Petroleum Refining	114,950,000,000
Electric plants	77,326,408,000
Other industrial uses	305,990,592,000
Total industrial	1,247,102,000,000
Total consumption	1,567,979,000,000

*Bulletin, U. S. Department of Commerce, September 24, 1929.

The use of natural gas for industrial purposes was 9 per cent greater in 1928 than 1927, and a 10 per cent increase is estimated for 1929 over 1928.

The superiority of natural gas and also of gas from the cracking process and from crude oil distillation over other commercial gases for heating purposes is evident from the table of calorific values below:

CALORIFIC VALUES OF COMMERCIAL GASES

Gas—	B.T.U. Per Cubic Foot
Gas from the cracking process	1,250
Natural gas	1,000
Crude oil distillation gas	1,000
Carburetted water gas	550
Coke oven gas	500
Water gas	300
Producer gas	140
Blast furnace gas	100

In the generation of electric power the use of natural gas is showing a particularly notable increase. Whereas in 1919, but 2.4 per cent of the fuel used by electric power stations was natural gas, in 1928 it amounted to 7.2 per cent. The proportions of coal, oil and natural gas used in the generation of electricity in

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A & B Drilling Co., Oklahoma City
Capitol Drilling Co., Oklahoma City
Prince & Prince, Electra, Texas
Clark & Cowden, Duncan, Okla.
Independent Oil Co., Oklahoma City
G. E. Gilberth, Oklahoma City
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late years are shown in the table following:

FUELS USED IN PRODUCTION OF ELECTRIC POWER IN THE UNITED STATES, 1919-1928

Year—	Per cent of total fuel used— Coal	Oil	Natural Gas
1919	90.9	6.7	2.4
1920	90.0	7.4	2.6
1921	89.2	7.9	2.9
1922	88.9	8.0	3.1
1923	89.1	7.8	3.1
1924	86.3	8.9	4.8
1925	90.1	5.4	4.5
1926	90.2	4.8	5.6
1927	90.7	3.4	5.9
1928	89.2	3.6	7.2

Because during this period there was an increase in the amount of power generated, the gain in the use of natural gas was even larger than the table would indicate, amounting to 261 per cent, against a 12 per cent gain for coal. In four southern states, where the greatest increase in the use of natural gas occurred, 17,255,490,000 feet of natural gas were consumed in 1924 and 50,305,878,000 in 1928. In California a single electric power generating plant utilized 12,000,000,000 feet of gas in the first 10 months of 1929.

A large user of natural gas is the ceramic industry, which finds it a particularly suitable fuel because of the ease with which accurate temperature and furnace atmosphere control can be maintained. These factors are important in production of uniform and high grade ceramic products. In making enamelled ware, one plant reported a reduction in cost of enamelling from $1 to 20 cents per 100 square feet of surface when gas was introduced.

In glass making, gas is also finding extensive use. Tank furnaces for melting glass are often gas heated. Gas is also used in heating the smaller pot furnaces, and the lehrs used in annealing.

In the manufacture of steel or steel products some plants now carry out the larger part of their heating operations with natural gas. These include open hearth furnace melting, forging, annealing, tempering and hardening. In heat treating, the use of gas is advantageous because of the ease with which uniform temperatures can be maintained, and the ready control of the furnace atmosphere.

Some foundries are also using gas, and report that it is superior to other fuels because it produces less oxidation, gives more heat per crucible, and is easier to manipulate.

In the melting of brass gas is particularly desirable. Variation in the composition of brass is largely due to oxidation and volatilization. When gas is employed, oxidizing conditions can be avoided, and the temperature accurately controlled. Exact regulation is difficult with solid fuel, and as a result loss of metal by volatilization is often serious.

The automobile industry, it is estimated, uses gas for 75 per cent of its metal heating operations. Other industries making extensive use of natural gas are the smelting of zinc and other metals, varnish manufacture, pulp and paper, aluminum making and commercial baking. The individual industries have increased their use of natural gas from 100 to 500 per cent in the last few years.

In West Texas the use of natural gas is particularly widespread. Hutchinson[2] has listed the industries that are major consumers of this gas and the approximate amounts consumed per plant as follows:

GAS CONSUMPTION IN WEST TEXAS

Industry—	Natural gas consumed per day, per plant (Cubic feet)
Sulphur mines	20,000,000 to 30,000,000
Oil refineries	10,000,000 to 20,000,000
Electric generating plants	10,000,000 to 15,000,000
Sugar refineries	5,000,000
Cement plants	5,000,000
Cotton oil mills	5,000,000

Gas Engines

A major use of natural gas is the operation of internal combustion engines. In the oil fields these engines are used to operate drilling machinery, well pumps, pumps actuating gathering systems, compressors in gas and air lift installations, compressors in natural gasoline recovery plants, and electric generators. The engines are of a variety of sizes and types, single or multiple cylinder, high or low speed. They may be of as great capacity as 3,000 horse power, while 1,000 horse power engines are extensively used. Gas engines are preferred to steam boilers in the oil regions because gas is almost always at hand, less skilled labor is needed with gas, and there is no loss of power in transmission. A view of a large compressor station in Texas is shown in Figure 9. Gas engines are easily portable. When a new well comes in it is often possible to rush a gas engine to the spot and pump to the gathering system flush oil that could not be handled economically in any other way.

In long gas pipe lines it is necessary to place compressor or "booster" stations along the line to accelerate the flow of gas. The pumps in these stations are normally driven by gas engines. Oil pipe lines also require pumping stations at frequent intervals. Where gas is available, oil lines are often equipped with gas engines.

Fueling Graf Zeppelin

An unusual use for natural gas was the fueling of the airship Graf Zeppelin on its trip around the world. The ship was designed to burn a gas of the density of air, in order that the combustion of the fuel and its replacement in the fuel holders by air would cause no change in weight and therefore not interfere with the craft's balance. In Germany the Zeppelin was fueled with Blau gas, made from oil. From Lakehurst, N. J., to Friedrichshafen, Germany, ethane from natural gas, whose density is close to that of air, was consumed. Ethane was not used for the remainder of the voyage, however, as it is not easily liquefied, and can be shipped only in containers of large volume or under high pressure. Either alternative is undesirable in long distance transport. Accordingly, for the journey from Tokio to Los Angeles, Pyrofax, a commercial natural gas fraction denser and more easily liquefied than ethane, consisting of about 2 per cent butane and 98 per cent propane, was shipped to Tokio, and mixed there with hydrogen to make a fuel of the density of air. From Los Angeles to Lakehurst, Pyrofax mixed with natural gas was used, in the proportions of about 36 per cent natural gas and 64 per cent Pyrofax. A view of the Los Angeles fueling is shown in Figure 10. At that fueling 181,000 feet of gas were taken aboard in 12 hours.

The approximate consumption of fuel gases during the round the world flight of the Graf Zeppelin[3] was as follows:

	Cubic feet
Pyrofax	975,000
Ethane	850,000
Blau gas	850,000
Natural gas	325,000
Hydrogen	215,000
Total	3,215,000

Helium from Natural Gas

The story of helium is a romance of modern industry. First discovered in the sun, in 1868, and in 1894, in the gases given off by a rare mineral, it was a scientific curiosity until the great war. At the pre-war value of helium, a quantity sufficient to fill an airship, if that quantity could have been obtained, would have cost $3,000,000,000.

In 1907 Cady and McFarland made the momentous discovery that helium was present in the natural gas of Dexter, Kans. During the war great interest in helium was aroused and plans for its isolation from natural gas were made which were carried to completion after the war. It is now known that much of the natural gas in the United States contains helium, at least in traces. The maximum that has been reported by the government is slightly over 2 per cent, while a single well with 7.8 per cent helium has been claimed by a private firm. Helium can be commercially extracted if present in natural gas to the extent of one-half of 1 per cent. A single gas field in Texas is estimated to contain enough helium to fill 100 dirigibles of the size of the Graf Zeppelin and keep them afloat for five years. In case of necessity

[2]The Oil and Gas Journal May 10, 1928, 94.

[3]J. G. Davidson, Carbide & Chemical Corp.

100,000,000 feet of helium per year could be produced in the United States[4].

A plant with a capacity of 1,000,000 feet of helium per month was erected by the federal government at Fort Worth, Texas, shortly after the war. This plant produced over 43,000,000 feet of the gas. Because of the depletion of natural gas fields near Fort Worth, a second plant, much improved in design, has now been built and put in operation at Soney, near Amarillo, Tex. In July 1929, the production of helium there was 648,850 feet[5], at a cost of about $20 per 1,000 feet. Compare this with the cost of $500 per 1,000 feet in the war time experimental plants. Production of helium by private companies is also commencing.

Helium of 93-94 per cent purity is obtained by liquefying all the other constituents of natural gas at temperatures running down to that of liquid nitrogen, under a pressure of 1,000 pounds per square inch.

The tremendous importance of helium lies in its non-flammability, and the increased safety it gives to aircraft. No doubt as new sources of the gas are found and the technique of its extraction still further improved, it will become much cheaper and more widely used.

Domestic Use

In 1928, as shown by a table already given, 320,877,000,000 feet of natural gas was supplied to 4,366,000 domestic consumers in over 2,000 communities in the United States. This was an increase over 1927 of 10 per cent in the number of consumers and 8 per cent in the amount of gas used. The value of this gas at points of consumption was $225,000,000.

At times natural gas is pumped directly into city gas mains. In other cases it is used to enrich manufactured gas, such as producer gas or water gas, as the natural gas has a calorific value far above these. This use is increasing. In 1929 about 75,000,000,000 feet of natural gas was purchased for use with manufactured gas, a gain over the previous year of 50 per cent.

In Southern California the city gas is a mixture of manufactured gas and natural gas. When there is sufficient natural gas available the manufactured gas is replaced by "reformed" natural gas, which is mixed with unchanged natural gas. Reformed gas is gas which has undergone partial thermal decomposition, with consequent increase in volume and lowering in thermal value and density. If natural gas is to replace manufactured gas without adjustment of domestic burners, some such process is desirable in order that a gas of uniform density and heating value may be marketed. As carried out by Masser[6] the reforming process is performed by injecting natural gas against hot brick in a commercial gas generator. The main chemical change occurring is practically complete decomposition of the ethane in the natural gas into hydrogen. Analyses are given below of the gas before and after reforming.

A thermal analysis of the reforming process is given below:

HEAT BALANCE IN REFORMING NATURAL GAS

"Fuel" gas per 1,000 cubic feet reformed gas, cu. ft.	190.3
"Make" gas per 1,000 cubic feet reformed gas, cu. ft.	556.1
	746.4
Expansion of "make" gas	1.798
Expansion of "fuel" and "make" gas together	1.340
Calorific value natural gas	1,186
Calorific value reformed gas	602
Calorific value total "fuel" gas used, in million B.t.u.	3,200
Calorific value total "make" gas, in million B.t.u.	9,360
	12,560
Calorific value reformed gas, in million B.t.u.	8,540
Thermal efficiency on "make" gas alone, per cent	91.2
Thermal efficiency, on total gas used, per cent	68.0

("Fuel" gas is used to heat up the generator; "make" gas is that actually reformed.)

Hough and McLaughlin[7] found that in some cases adding air to the gas being reformed was an advantage, as its combustion increased plant capacity and in some cases thermal efficiency. The use of air increased the density of the finished gas, however, and this limited the extent to which air could be added. Yunker[8] at Louisville, Ky., faced the same problem of preparing from natural gas a domestic fuel which could be substituted for mixed gas. He passed natural gas through a water gas generator in which the coke had been blasted to above the decomposition temperature of methane. An expansion of the gas of 2.25 to 1 was obtained, with consumption of 15 pounds of coke per 1,000 feet of natural gas.

Natural gas is also prepared for city use by subjecting it to a process of partial combustion, which increases the volume and decreases the calorific value.

The major use of domestic gas is for heating purposes. Recent years have seen the shifting of the lighting load from gas, either manufactured or natural, to electricity. Foremost among heating uses of gas is cooking, but house heating by gas is growing rapidly because of its convenience, and suitability for automatic regulation. An increase of 50 per cent in this use is reported in 1929. Refrigeration, water heating and household incineration are also important. Cooling buildings in summer by gas refrigeration is being considered in the United States.

Bottled Gas

A new development in the utilization of natural gas is the sale of "bottled" gas. this is liquefied propane and butane. These substances are undesirable in natural gasoline in more than limited amount, and may easily be fractionated from this gasoline when it is stabilized. An earlier table showed that tremendous amounts of these two hydrocarbons are available. It has been estimated that the propane and butane that could be ob-

[1]Moore, The Oil and Gas Journal June 16, 1927, 229.
[2]The Oil and Gas Journal, August 29, 1929, 82.
[3]Proc. Pacific Coast Gas Association 15, 724 (1924).
[7]Proc. Pacific Coast Gas Association 16, 511 (1925).
[8]The Oil and Gas Journal 27, No. 51, 111 (1929).

ANALYSES OF SIGNAL HILL NATURAL GAS AND OF REFORMED GAS

	1,208 B.t.u. Signal Hill gas per cent	550 B.t.u. Reformed gas per cent	700 B.t.u. Reformed gas per cent
H_2	0.0	48.3	40.0
CH_4	66.8	33.0	46.8
C_2H_6	29.5	0.0	0.0
C_nH_{2n}	0.7	1.2	4.3
CO	0.0	13.6	5.4
CO_2	1.9	2.1	1.4
O_2	0.1	0.3	0.1
N_2	1.0	1.5	2.0

A further analysis of the process is given in a second table:

COMPARISON OF NATURAL GAS AND REFORMED GAS

	Natural gas — 655 cu. ft. — 1,175 B.t.u.			Reformed gas — 1,000 cu. ft. — 750 B.t.u.		
	Per cent by vol.	Total cu. ft.	Total pounds	Per cent by vol.	Total cu. ft.	Total pounds
H_2	0.0	0.0	0.000	36.7	367.0	1.945
CH_4	70.1	459.0	19.435	50.3	503.0	21.300
C_2H_6	26.8	175.0	13.900	0.0	0.0	0.000
C_nH_{2n}	0.9	5.9	0.437	5.1	51.0	3.780
CO	0.0	0.0	0.000	4.4	44.0	3.260
CO_2	1.3	8.5	0.989	1.1	11.0	1.763
O_2	0.1	0.65	0.055	0.1	1.0	0.086
N_2	0.8	5.2	0.386	2.3	23.0	1.708
			35.202			33.242

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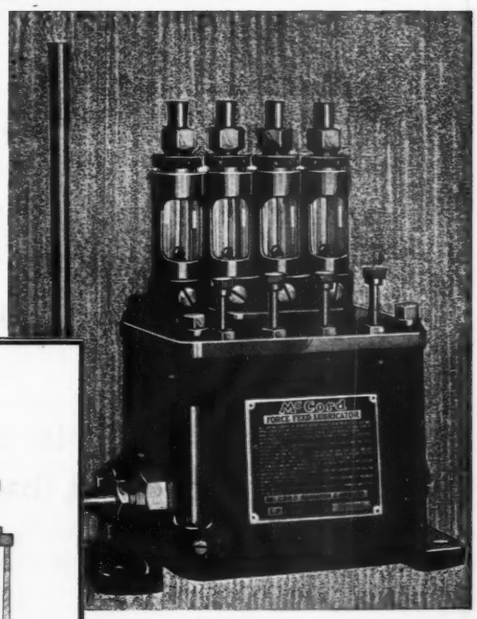
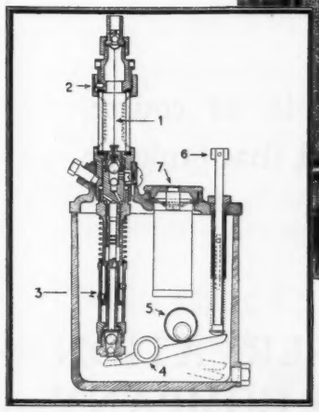
A rocker arm of advanced design is responsible for the instantaneous, unvarying delivery of oil by the "LF". Instant adjustment can be made from a steady stream to a fraction of a drop, and with the well-known McCord accuracy—always the same amount at exactly the same time. This part is a special Bronze Aluminum Alloy Forging—and needless to say machined with greatest care as the whole lubricator is dependent upon it for accuracy. Its importance can be seen by looking at the drawing below (No. 4), it is the connecting link between the pump—the regulating unit—and the operating lever.

The Rocker Arm is a special Bronze Aluminum Alloy Forging because this is the strongest combination of metals obtainable for this particular part. Here you have aluminum, which is brittle and possesses great strength, grafted to bronze, which is malleable and has great wearing quality.





McCORD

RADIATOR & MFG. CO., DETROIT, MICH.

LUBRICATOR DIVISION

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If you are not now paying the lowest possible rate for insuring your tanks, it's time for an adjustment—either you need Oceco equipment or you deserve a reduction of your premiums.

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877 Addison Road Cleveland, Ohio

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tained has twice the calorific value of all the manufactured gas produced in the United States.

In the manufacture of "bottled" gas a propane-butane cut is taken from the top of a stabilizing column operating under pressure, and is fractionated into two grades of gas for commercial use, one consisting almost entirely of propane, intended for domestic use, the other butane for industrial utilization.

Some of the properties of these condensed natural gases are shown here.

PROPERTIES OF CONDENSED NATURAL GAS

	Domestic (mainly propane)	Industrial (mainly butane)
Specific gravity	0.509	0.576
Vapor pressure, lbs. per sq. inch at 70° F.	120	33
Initial b.p. °F.	—45	12
Final b.p. °F	—40	30
Cubic feet of gas per gallon of liquid	36	32
Heating value, B.t.u. per cubic foot of gas	2,550	3,200
Per pound	21,650	21,420
Per gallon	91,800	102,400

Although this bottled gas is a relatively new product, it has found many uses, and its consumption is growing rapidly. It is estimated that 7,000,000 gallons were supplied in 1928, and 21,000,000 in 1929. It is used for domestic purposes where other gas is not available. Either refillable cylinders are attached to the kitchen range, or a drum is used which may be refilled from a special tank truck as shown in Figure 11. It will be noted that per cubic foot the gas has about four times the calorific value of manufactured gas, and two and one-half times that of natural gas.

The use of bottled gas for the operation of automobiles is not impracticable. In 1927 an automobile was successfully operated in the United States using natural gas as source of motive power. The easily liquefiable hydrocarbons propane and butane are high in calorific value, and have excellent antiknock rating.

Butane is also being used in city gas plants for enriching producer gas, water and other gases of low heating value. In some small towns having no gas plants a mixture of air and butane is being successfully distributed. The condensed gas is also used in chemical laboratories for heating purposes. Bottled gas is being used by metal working mills for hardening, annealing and carburizing, by glass factories, and in the ceramic and other industries.

To some extent butane is replacing acetylene in cutting metals. It is said to be cheaper and faster, and to make a cleaner cut.

Converting Gas Into Motor Fuel

Results of great promise have been obtained in the cracking of natural gas to form motor fuel having a high content of aromatic hydrocarbons and therefore high antiknock value. Yields of 0.2 to 0.3 gallon of motor fuel per 1,000 cubic feet of natural gas have been reported. It is known, however, that where the gas contains large amounts of ethane and propane more than 1 gallon of motor fuel per 1,000 cubic feet is obtainable. Both the federal Bureau of Mines and individual investigators are working on this problem.

Gas From Cracking Process

The modern cracking process produces gas, in addition to gasoline, Diesel or furnace oil, fuel oil and coke. The production of gas from the cracking process in 1929 reached a total of 250,000,000,000 feet. This gas, once considered by the refiner largely as a loss, is now filling a unique place among petroleum products. It is distinctive in its properties, largely on account of its content of unsaturated hydrocarbons, and is finding uses to which it is particularly suited. It enriches low fuel gases for industrial and domestic requirements. It can be converted into antiknock motor fuel. It is increasingly sought as raw material for chemical synthesis of alcohols, glycols, and their derivatives.

In less than two decades the cracking of heavy petroleum oils has grown from an incident in the oil industry to a major refinery operation. A present day installation of the cracking process is shown in Figure 12. From practically zero production in 1912, cracked gasoline has gained in importance until it now represents one-third of the 17,000,000,000 gallons of gasoline produced in the United States, in 1929. It holds a place as premium motor fuel because of its antiknock properties.

With this expansion in the use of the cracking process, the amount available of products of cracking other than gasoline—gas, Diesel, or furnace oil, residual oil, and coke—have also shown great increase, and have found their place in industry. The Diesel or furnace oil is in demand for engine operation or house heating. Coke from cracking is used for electrodes, in carbide manufacture, as fuel, and for the production of water or producer gas. And not least in importance, gas from the cracking process is coming into its own.

Composition of Gas

Gas from the cracking of petroleum oils is usually characterized by a relatively high content of olefines. These give it high calorific and illuminating value. To be sure, there is wide variation in the proportions of the components in different samples of cracked gas. This is due to differences in the stocks cracked and to variations in the cracking conditions. By proper regulation of the cracking process the percentages of the different substances in the gas may be varied almost at will.

The following table gives typical analyses of a number of gases from the cracking process:

ANALYSES OF GAS FROM THE CRACKING PROCESS

Ethylene	0.6	1.9	2.2	2.5	2.7	4.0	4.7	6.3	27.0	28.0	32.4
Propylene	11.7	0.8	15.2	5.0	7.6	6.8	6.1	12.0	16.0	19.0	16.8
Butylenes	4.7	7.4	3.9	0.3	6.5	2.6	2.0	7.1	9.0	....	5.4
Amylenes	....	....	....	0.2	....	....	....	....	....	....	1.1
Butadiene	....	....	....	....	....	....	....	....	1.0	....	0.7
Higher olefines	....	....	....	....	....	....	....	....	....	3.0	3.7
Hydrogen	3.0	1.9	2.0	....	3.0	5.0	5.6	1.7	7.0	....	....
Paraffins	80.8	88.0	77.7	....	80.2	81.6	81.4	72.9	40.0	....	....

A more detailed analysis of a sample of cracking process gas from a Mid-Continent fuel oil is as follows:

MID-CONTINENT CRACKED GAS

Gas—	Per cent
Hydrogen	2.9
Methane	64.5
Ethane	16.0
Propane	6.7
Butanes	2.9
Pentanes	Trace
Hexane	Trace
Ethylene	2.9
Propylene	1.9
Butylene	1.3
Higher unsaturates	Trace
Hydrogen sulphide and carbon dioxide	0.3

Amount of Gas Produced in Cracking

The volume of gas produced per barrel of charging stock cracked varies quite widely. The gas production depends on the nature of the oil and the conditions of cracking operation, such as temperatures, pressure and time. In the table are shown the volumes of gas produced in cracking oils of different types. The cracking conditions to which the oils were subjected ranged in temperature from 825° F. to 930° F. and pressures from 100 to 200 pounds per square inch. Other data of the cracking operations, including the yields of gasoline, are also given.

Uses of Cracked Gas

The first use of gas from cracking units, and the major one today, is for refinery fuel. The heating value is high, approximating 1,250 B.t.u. per cubic foot.

Gas from the cracking process has higher uses, however, than serving as fuel for stills and boilers. Where cracking units are located near cities, the gas from the cracking process is often in demand for blending purposes, to be mixed with water gas, coal gas and coke oven gas. From the gas makers' standpoint the use of cracked gas is advantageous because it eliminates the equipment re-

quired in enriching gas by pyrolysis of gas oil.

Cracked gas may be converted into motor fuel and hydrogen by further cracking.

Cracking of Coal Tar Oils

It has already been emphasized that a development of outstanding importance to city dwellers, which would also be in the interests of fuel economy and of conservation, is the carbonization of coal at the mine, followed by the cracking of the tars, gasification of the coke, and distribution of but two products, gas and gasoline. When one considers the labor involved in loading and shipping coal, unloading, delivering and firing it, with consequent dirt and smoke, one may well ask, "Is it true economy to burn coal in our cities?" Gas is readily distributed by pipe line, burns both in factory and home with less labor than is required with coal, and can free our cities from the burden of the smoke nuisance. The use of gas in place of coal would mean a new era in city life.

The cracking of coal tar oils produced by low, intermediate and high temperature carbonization, to furnish gas and gasoline, has been successfully carried out. Typical results of cracking tests on these tar oils are given below:

Source of oil—	Gravity (° A.P.I.)	Gas (cu. ft. per bbl., 42 gals.)	Motor fuel (per cent)	Furnace or Diesel oil (per cent)	Coke (pounds per bbl., 42 gals.)
Low temperature carbonization	8.9	570	28.8	10.3	...
Acid oil from low temperature carbonization	9.9	485	25.3	28.9	73
Intermediate temperature carbonization	6.0	500	14.5	17.7	241
High temperature coal tar	7.0	706	12.1	22.6	158
Kentucky cannel coal	25.1	577	42.1	22.6	106
Lignite tar	13.9	767	38.3	...	241
Lignite distillate	21.1	672	46.7	18.1	84
Brown coal tar	9.2	835	28.6	...	96

Tar acids, produced by low temperature carbonization, have been converted by the cracking process into more useful tar acids of lower boiling point, and approximately 1,000 cubic feet of gas per barrel of charging stock. Use of steam during the cracking increased the gas yield to 1,900 cubic feet per barrel. An analysis of gas made without the use of steam is as follows:

Gas—	Per cent
Hydrogen	39.2
Paraffins	30.6
Unsaturates	1.2
Carbon monoxide	1.3
Carbon dioxide	0.8
Oxygen	2.0

Gas Making from Coke

Coke from the cracking process is an excellent material for the manufacture of water gas or producer gas. In structure it is firm and cellular, so that a large area is exposed to reaction with steam or air.

Water gas can be produced from cracking process coke at the rate of about 32 cubic feet per pound of coke. The water gas has a B.t.u. content of about 300 per cubic foot.

Tests have been made in manufacturing producer gas from a coke of the following composition:

	Per cent
Moisture	0.97
Volatile	9.35
Fixed carbon	89.01
Ash	0.67
B.t.u. per pound	16,042

The gas had an average calorific value of 144 B.t.u. per cubic foot. Its composition was as follows:

	Per cent
Hydrogen	13.40
Methane	0.48
Ethane	0.33
Unsaturates	0.27
Carbon monoxide	22.40
Oxygen	3.23
Nitrogen	54.64

In commercial practice about 85 cubic feet of producer gas is made per pound of cracked coke.

Petroleum Distillation Gas

In 1929 the distillation of crude oil produced an amount of gas estimated at 270,000,000,000 cubic feet from nearly a billion barrels of crude oil run to stills. This is a 200 per cent increase in 10 years, from the 90,000,000,000 cubic feet of gas produced in 1919, when 360,000,000 bbls. of oil were distilled. Petroleum distillation gas is composed largely of the paraffin hydrocarbons, and is similar in composition to natural gas. It is used in large amount as refinery fuel, distributed by some refineries to nearby towns, and is sold in other cases to city gas companies for enriching manufactured gas, as it has a calorific value of about 1,000 B.t.u. per cubic foot. This gas has also been successfully cracked to increase its volume and make a lower B.t.u. gas for use in city mains.

Conclusion

Replacement of coal by gas is definitely the trend in American fuels. At present a great expansion is occurring in the use of natural gas, which is available in gigantic quantities and is carried by pipe lines over large sections of the United States. In addition, great and increasing volumes of gas from petroleum distillation and from the cracking process are being utilized. The entire replacement of coal by gas is a worthy goal. The use of gas means domestic convenience, industrial efficiency, and smokeless cities.

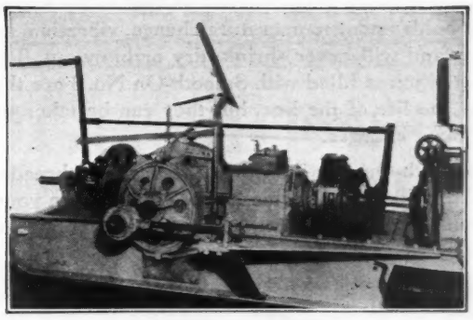
The present smoke evil, due to the burning of coal in our cities, is a burden that an enlightened civilization should not tolerate. On a purely economic basis the use of coal in cities cannot be defended.

GAS PRODUCTION IN CRACKING REPRESENTATIVE OILS

Source of oil—	Gravity (° A.P.I.)	Gas (cu. ft. per bbl., 42 gals)	Motor fuel (per cent)	Furnace or Diesel oil (per cent)	Coke (lbs. per barrel)
FUEL OILS					
Panhandle, Texas	29.5	425	65.5	11.4	45
Caddo-Bull Bayou, Louisiana	28.6	388	67.8	12.2	28
Mid-Continent	27.4	517	61.2	17.9	41
Muskegon, Michigan	26.1	620	60.1	16.5	77
Rosecranz, California	25.7	517	58.0	21.2	38
California	25.6	670	61.2	17.3	44
Eastfield, Arkansas	23.6	476	60.9	15.5	53
North Texas	22.7	499	61.6	12.5	31
Wyoming	22.4	576	59.8	9.9	60
Oregon Basin, Wyoming	22.2	700	56.6	11.5	77
Kentucky	22.0	640	60.8	14.6	48
Pondera, Montana	21.1	865	49.3	15.0	72
Ventura, Calif.	20.1	368	57.2	15.8	33
McCamey, Texas	19.9	624	59.1	13.5	63
Alamitos, California	19.5	698	42.7	8.5	62
California	17.2	855	48.8	15.9	89
California	16.7	637	48.2	14.6	102
Texas	8.9	427	30.6	3.2	138
GAS OILS					
Pennsylvania	38.8	570	71.9	6.8	24.8
California	38.6	350	64.8	16.8	12.9
El Dorado, Arkansas	34.7	255	60.7	21.5	30.0
California	33.7	250	47.1	38.9	14.7
Texas	27.5	330	48.6	32.1	29.3
California	23.2	628	56.4	13.5	33.6
CRUDE OILS					
Nacome, Texas	22.5	644	58.8	16.5	42
Cole-Bruni, Texas	17.9	608	61.7	21.3	21
Poso Creek, California	15.4	838	46.3	21.3	86
Maricopa Flats, California	15.4	785	52.1	19.7	42
Maricopa Flats, California	13.7	874	48.2	21.3	73

Kingwood Oil Co. Sugg. No. 1
Irion County, Texas

Well drilled 7218 ft. deep, using Young Model 130-R Gasoline Drilling Engine, shown below.



This engine is equipped with two 18-inch Twin Disc Clutches. As usual, the clutches did their work without a hitch.

Twin Disc Clutches for various types of oilfield work are now made in sizes from 4⅛ to 42-inch effective diameters—a size and type to meet every need. Engineering data for any installation furnished on request. *Write.*

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RACINE WISCONSIN

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CLUTCHES

Threads badly crushed

—a tight joint possible only by filling with

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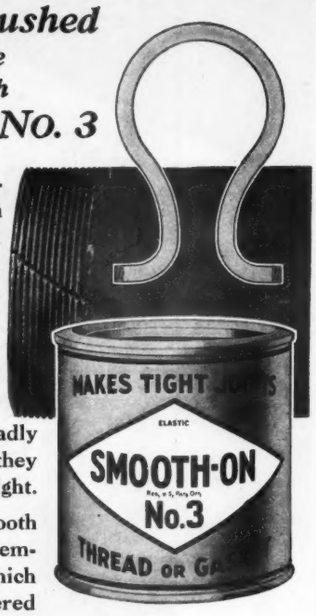

AN Engineer found it necessary to put an expansion loop into an existing 4-in. threaded high-pressure steam line to stop joint leakage, from intermittent heating and cooling. The loop was bent to order, and was shipped without protection of the threads.

Those on one end were so badly battered that on assembling, they refused to become pressure-tight.

The threads were filed smooth and the joint was finally assembled with Smooth-On No. 3, which filled the voids on the battered tips and made a seal which in subsequent service has never shown the first sign of leakage.

Smooth-On No. 3 is the simplest filler that can be applied to pipe threads or gaskets, costs no more than a makeshift, and being made specially for the purpose, makes a perfectly tight joint, even where nothing else could be expected to hold.

Because Smooth-On No. 3 makes a lasting metallic deposit of the same expansion co-efficient as that of the surrounding metal, it holds under temperature change, vibration, and high pressure, and will never shrink, dry or blow out. Threaded or gasketed joints filled with Smooth-On No. 3 are therefore good for the life of the line, but they can be taken apart in case of plant changes.

Using Smooth-On No. 3 on every flanged or threaded joint you make would stop the line leakage nuisance in your plant, and would avoid many an expensive disassembling job.

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7-3-30

It involves the loading, transporting, unloading, delivering and firing of the fuel, the disposal of ash, the loss of valuable oil constituents that can be reduced by carbonization, and the adding of tremendous amounts to the cleaning bills of cities. In addition to this, it is a detriment to the health and happiness of urban populations.

Extension of the use of natural and petroleum gases will partially solve the fuel problem. But the full solution requires the co-operation of the coal industry. In the interest of health and of economy alike, a change in method of using coal is demanded. Coal should be converted into gas and gasoline in plants at the pit mouth. By carbonization processes coal can be converted into gas, coke, gasoline and tar. The tar can be converted by the cracking process into more gas, gasoline and coke, and the coke from both carbonization and cracking can itself be converted into water gas or producer gas. The two products, gas and gasoline, could be pipe-lined to consumers, instead of shipping coal. The practicability of the piping of both gas and gasoline has been proved in the United States. The adoption of this plan would be sound fuel progress, and a great boon to the Nation.

KENTUCKY-TENNESSEE

(Continued from Page 60)

ing No. 1 on the W. H. Hart farm, in the Red Hill district of Daviess County, a short distance from the Rex-Pyramid Co.'s good well on the Yeiser farm.

Operations are gradually getting close to Owensboro, in Daviess County. Vick, Zinzel and others are working in the May Springs area about 5 miles southeast of Owensboro, where the firm holds a block of around 1,500 acres, which it will test out. The test now drilling is about 3 miles northwest of the good well recently found on the Eaty farm, near Habit, and near the Hartford Road.

Louisville Gas & Electric Co. is drilling No. 1 on the Christian farm, near Haynesville in Ohio County, an offset to the same company's No. 8 on the Miller 175 acres. The Christian test was dry in the Jett sand and is going to the Barlow sand.

R. E. Lingenfelter and others are drilling on the Tilden Brown, 3 miles southeast of Pellville, in northern Ohio County. Mr. Lingenfeltlter is an old-timer from the Lawrence County, Illinois, Field.

In Ohio County, T. P. Royal and others are drilling No. 16 on the T. P. Royal 60 acres in the Friendship Church area. James C. Ellis and others are due in with No. 5 on the Don Mitchell falm, also No. 1 Ira Lloyd farm.

In Daviess County, the Red Hill Oil Co. is drilling on the Irwin-Slagle farm, in the Red Hill Pool. Ellis & Young are drilling Nos. 1 and 2 Wells farm. L. C. Young is drilling No. 1 M. Sands farm, all in the Red Hill Pool.

In Hancock County, the Armistead Oil Co. is drilling No. 1 J. C. Adams, near Hawesville, in Hancock County. Duncan & Beeson are drilling on the William Richardson farm, and McDonough and others are drilling No. 1 Bee Vogles farm, also in Hancock County.

TENNESSEE

Tennessee once more is in the limelight as to development for oil and gas, the more so as it is known there are large areas of gas territory in the central portion of the State from the north to the south line of the State. In Morgan County, a number of years ago, some nice oil producers were found by the Russell Producing Co., the oldest in the Sunbright Field, some of them being drilled 16 years ago, and during 1929 the 23 wells of this company produced 13,000 bbls. The Russell Co. holds leases on approximately 50,000 acres. The Rock Creek Oil Co. holds leases on around 20,000 acres and have two small oil wells so far, but will do considerable drilling during the balance of the year.

In the Sunbright Field, the Benedum-Trees Co. holds around 100,000 acres of leases and so far have completed four large gas wells ranging from 50,000 to 4,500,000 feet. The Eastern Tennessee Oil & Gas Co. holds leases on close to 50,000 acres and has already completed two gas wells.

A letter just received from a well-known oil man, geologist and scout has this to say about other sections of Tennessee to the west and southwest of the Sunbright area, where a greater amount of development work is planned and some already under way. The letter says:

"In going over Tennessee on a tour of inspection it seems gas is the main object of development now and several rigs are actually drilling and more coming in.

"There are two rigs drilling in Putnam County, one by Joe Morgan, just east of Cookeville, and another by Kirkwood & Campbell about 6 miles northeast of Cookeville. This well is down about 1,700 feet with a small showing of oil and gas. J. N. Hunter of Bowling Green, Ky., is the contractor. Kirkwood & Campbell purchased an old gas well 3 miles north of Cookeville and now have about 50 consumers in the town. The same firm is drilling its second well in Smith County, about 1 mile north of Carthage. Their first effort was located in the city limits of Carthage and shows for about 500,000 feet of sweet gas at 430 feet. They have the gas franchise for Carthage and are preparing to pipe the town.

"J. H. McClurkin, an old-timer in the industry, is preparing to drill on Little Trace Creek, southeast of Spivey, in Clay County, on a structure located by Doctor Bowles of the Potter Palmer Corp. four years ago. Gas is seeping out of the creek and a big gas blowout once occurred near the top of the dome.

"J. T. Newell and others brought in a 500,000-foot gasser on the Oakley farm near Harpeth River in Dixon County recently. This well is about 8 miles north of White Bluff and is only 215 feet. The gas is in the upper members of the Ordovician, probably the Catheys, a very porous limestone. The location was made by Dr. L. C. Glenn, dean of the geological department of Vanderbilt University. The owners are starting No. 2, same farm, about 1,000 feet north of No. 1. Wood & Kenyon, Michigan operators, are spudding in on the Turner farm about a mile north of the Oakley well on a block of acreage secured from the Dickson County Oil & Gas Co.

Dickson County

"Dickson County seems in for a good play for the shallow gas and oil as it is known to have a number of domes and open structures worthy of a test. Several years ago quite a number of wells were drilled about 2 miles west of the Oakley on Jones Creek and all are said to have shown oil or gas or both and two wells at Cumberland Furnace are said to be standing full of oil. In 1920 Frederick G. Clapp and a corps of geologists mapped out a large section of Dickson County and doubtless numerous wells would have been drilled under their direction had not the oil market suffered a general collapse about that time, which put a quietus on all prospecting. The same geological conditions are said to exist as in Metcalf, Barren and Hart Counties in Kentucky, where substantial gas wells are now being developed.

"There are about a dozen gas wells in Warren County, Tennessee, and seven are hooked on to a pipe line supplying 150 consumers in McMinnville. These wells average about 450 feet in depth; the gas comes from a soft, porous formation about 220 feet below the Chattanooga shale. A. V. Walker of Nashville organized the McMinnville Gas & Heating Co., and has as his assistant "Pop" Schriber, known to many old Kentucky operators as the man who laid the independent line from the Gainesville Field in Allen County, Kentucky, to Bowling Green in the face of almost insurmountable obstacles.

"A New York concern is drilling a deep test about 6 miles south of McMinnville, in Warren County, Tennessee, and has already reached a depth of 1,600 feet. The location was made by Stuart St. Clair, a geologist who formerly resided in Kentucky; he is also superintending the drilling of a well near Sparta, in White County, where a franchise for gas has been secured."

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 44)

EDWARDS COUNTY

Dixie and Amerada's No. 1 McCarty, SW cor. Sec. 22-25-17w ..... Water 4,647-90 ft.; shut down 5,-100 ft.; plugging back to 4,452-92 ft.

ELLIS COUNTY

Central Commercial Oil Co.'s No. 1 Helms, SE cor. NE Sec. 2-12-20w ..... Drlg. 2,631 ft.
Streeter & Stearns' No. 1 Leiker, SW NE Sec. 26-13-20w.. Shut down 3,303 ft.
Byrene et al's No. 1 Fisher, NW SE Sec. 4-11-20w..... Shut down 1,000 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w ..... Shut down 3,544 ft.

ELK COUNTY

Croft & Frazier's No. 1 Keys, SE NE Sec. 26-31-10 ..... Rig.
Exchange Oil Co.'s No. 1 Rittig, NW SW Sec. 28-31-10... Abandoned 2,154 ft.; water.

ELLSWORTH COUNTY

Slick et al's No. 1 Unknown, NW cor. Sec. 25-17-10w .... Rig on ground.

FORD COUNTY

McNabb et al's No. 1 Fowler, C SE Sec. 26-27-22w ..... Shut down 400 ft.
Swain et al's No. 1 Kenthorne, C NW Sec. 21-25-24w.... Drlg. 3,575 ft.

GOVE COUNTY

Valerius & Baucher Oil Co.'s No. 1 Todd, NW cor. Sec. 24-13-27w ..... Drlg. 1,165 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w. Shut down 4,340 ft.
Naylor et al's No. 1 St. John, NW SE SE Sec. 27-8-25w.. Shut down 3,015 ft.

GRANT COUNTY

McKenna et al's No. 1 Sullivan, NE cor. Sec. 12-29-38w.. Shut down 50 ft.

GREENWOOD COUNTY

Staats et al's No. 1 Swan, NE NW Sec. 3-25-12 ..... Rig.
Mid-Continent Pet. Corp.'s No. 1 Griss, NW SW Sec. 33-25-12 ..... Rig.
Harwood Oil Co.'s No. 1 Log, SW NE, Sec. 20-25-10 ..... Rig.
Mallory's No. 1 Denchfield, SE NW Sec. 12-27-9 ..... Drlg. 1,810 ft.
Bundy, Smith & O'Neil's No. 1 Ford, NE NW Sec. 28-25-13 ..... Shut down 50 ft.
F. Konkay et al's No. 1 Rock, NW NE NE Sec. 7-27-12.. Shut down 1,836 ft.

HARPER COUNTY

Beeler et al's No. 1 Bear, C NE Sec. 21-31-6w ..... Shut down 1,830 ft.

HARVEY COUNTY

Gypsy Oil Co.'s No. 1 Shine, SE SW Sec. 26-22-3w..... Wilcox sand 3,707-10 ft.; water; total depth 3,798 ft.; abandoned.

KIOWA COUNTY

Phillips-Prairie's No. 1 Bean, NE SE Sec. 10-30-17w..... Drlg. 1,840 ft.
McKenna et al's No. 1 Raison, C NE Sec. 14-28-20w ..... Rig.

LYONS COUNTY

Griffith et al's No. 1 King, NW cor., Sec. 8-19-10 ..... Rig.
Sheedy et al's No. 1 Pyle, NE cor. Sec. 1-20-10 ..... Drlg. 2,040 ft.

MARION COUNTY

Magnolia Pet. Co.'s No. 1 Davis, SE NW Sec. 18-21-2..... Rig.
Dixie and Arkansas Fuel's No. 1 Hacker, NW NE, Sec. 6-17-1 ..... Rig.
Empire Oil & Ref. Co.'s No. 1 Hiebert, SE SW SE Sec. 20-20-2 ..... Drlg. 2,290 ft.
Marshall et al's No. 1 Higgins, NE cor. Sec. 33-19-5..... Rig.

MARSHALL COUNTY

Swicker & Sincox's No. 1 Remple, C N half NW Sec. 22-4-9 ..... Shut down 1,000 ft.
Brazier et al's No. 1 Runkel, SE NW Sec. 13-2-6 ..... Shut down 50 ft.

McPHERSON COUNTY

Simmons & Canary's No. 1 Bishop, NW SW Sec. 15-18-1w ..... Drlg. 1,500 ft.
Harry Skelly et al's No. 1 Neufeldt, SE NE Sec. 19-21-3w ..... Rig.
Milmac's No. 1 Decker, NW cor. Sec. 11-20-3w ..... Drlg. 3,389 ft.

MIAMI COUNTY

Clark's No. 1 Vaughn, SE SW Sec. 28-17-22w ..... Drlg. 1,200 ft.

MORTON COUNTY

McNabb et al's No. 1 Rickart, C SE Sec. 5-35-39w ..... Drlg. 1,772 ft.
Argus Prod. Co.'s No. 2 Chambers, C SE Sec. 21-34-39w.. Rig.
Argus Prod. Co.'s No. 1 Mangels, C NW Sec. 4-34-39w.... Drlg. 1,880 ft.
Argus Prod. Co.'s No. 1 Tillet, C SW Sec. 21-34-39w..... Rig.
Argus Prod. Co.'s No. 1 Sullivan, C NW Sec. 29-34-39w.. Rig.
Argus Prod. Co.'s No. 1 Burton, C SE Sec. 11-33-40w.... Location.
Argus Prod. Co.'s No. 1 Mangels, C SE Sec. 4-33-39w.... Drlg. 1,840 ft.
Argus Prod. Co.'s No. 1 Morgan, C SW Sec. 6-33-39w.... Location.
Argus Prod. Co.'s No. 1 Thompson, C SW Sec. 8-33-39w.. Rig; abandoned.
Argus Prod. Co.'s No. 1 Mangels, C SW Sec. 19-33-39w... Drlg. 2,552 ft.
Argus Prod. Co.'s No. 1 Mangels, C NE Sec. 20-33-39w... Location.
Argus Prod. Co.'s No. 2 Haywood, C NW Sec. 31-33-39w.. Drlg. 2,460 ft.
Argus Prod. Co.'s No. 1 Garner, C SE Sec. 18-33-39w.... Location.
Argus Prod. Co.'s No. 1 Dreibelbis, C NE Sec. 9-34-39w.. R.U.S.T. 2,545 ft.
Argus Prod. Co.'s No. 1 Little, C SE Sec. 24-34-40w..... Drlg. 2,763 ft.; showing 5,000,000 ft. gas.
Argus Prod. Co.'s No. 1 Watson, C NE Sec. 27-34-40w.... Rig.
Argus Prod. Co.'s No. 1 Mangle, C SW Sec. 6-34-39w.... Completed 2,632-2,900 ft.; 3,000,-000 ft. gas.
Argus Prod. Co.'s No. 1 Thompson, C SW Sec. 7-34-39w.. R.U.S.T. 2,507 ft.
Argus Prod. Co.'s No. 1 Rolla State Bank, C NW Sec. 8-34-39w ..... R.U.S.T. 2,560 ft.
Argus Prod. Co.'s No. 1 Hayward, C SW Sec. 9-34-39w.. Drlg. 1,940 ft.
Argus Prod. Co.'s No. 1 Thompson, C NW Sec. 18-34-39w. Rig.
Argus Prod. Co.'s No. 1 Darth, C NE Sec. 20-34-39w.... Drlg. 1,804 ft.
Argus Prod. Co.'s No. 2 Armstrong, C SW Sec. 4-34-39w.. Completed 2,610-2,880 ft.; 12,000,-000 ft. gas.
Argus Prod. Co.'s No. 1 Dixon, C SE Sec. 18-34-39w..... Completed 2,618-2,900 ft.; 4,000,-000 ft. gas.
Argus Prod. Co.'s No. 1 Chambers, C NW Sec. 25-33-40w. R.U.S.T. 2,543 ft.
Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-34-43w ..... Rig burned at 1,350 ft.

MORRIS COUNTY

Henderson et al's No. 1 Selsman, SW SE Sec. 24-16-9.... Rig.
Urschell et al's No. 1 Scott, NE NW Sec. 6-16-6 ..... Shut down 2,115 ft.

OSAGE COUNTY

Riggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 ..... Drlg. 200 ft.

PAWNEE COUNTY

Skelly Oil Co.'s No. 1 Milhouse, C SE Sec. 34-23-17w.... Drlg. 4,270 ft.

PRATT COUNTY

Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w ..... Drlg. 3,950 ft.

RENO COUNTY

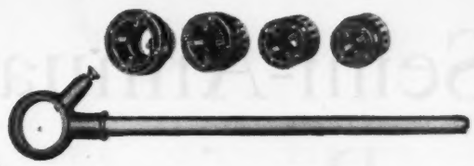
E. L. Study and H. L. Turner's No. 1 Haury, NE SW, Sec. 1-23-4w ..... Drlg. 150 ft.
Phillips Pet. Co. and Tom Palmer's No. 1 Harsch, NE SE Sec. 14-26-5w ..... Drlg. 2,095 ft.
United Pet. Co.'s No. 1 Houston, NW cor. Sec. 4-22-10w.. Spudding; shut down.
C. A. Cheney and M. M. Valerius' No. 1 Stevens, C NE SE NE Sec. 6-26-7w ..... Shut down 3,414 ft.

RICE COUNTY

Hershey Golden & Skelly's No. 1 Brandenstein, Sec. 10-19-10w ..... Location.
McPherson and Shell's No. 1 Jennings, NE SW NW Sec. 29-18-6w ..... Drlg. 2,355 ft.
Miller & Brown's No. 1 Schartz, Sec. 14-20-10w ..... Drlg. 2,043 ft.
Hoffner, Lee & Shell's No. 1 Slad Farm Corp., C SW Sec. 33-19-6w ..... Drlg. 2,020 ft.
Tatlock et al's No. 1 Ploog, C SW SE Sec. 33-18-9w .... Drlg. 2,080 ft.
Danciger et al's No. 1 Bell, C SW Sec. 16-19-8w ..... Shut down 3,498 ft.
McCulloch et al's No. 1 Williams, C NE Sec. 35-20-8w .. Shut down 3,565 ft.

ROOKS COUNTY

A. H. Kruger's No. 1 Steis, NW SE SW Sec. 12-9-16w .. Shut down 570 ft.
Streater-Stearn's No. 1 Conger, SE NW NE Sec. 16-10-16w ..... Rig.



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RUSH COUNTY

Prairie et al's No. 1 Lecker, NW SW SW Sec. 5-18-16w..Location.
Syndicate Oil Co.'s No. 1 Lannen, C SW Sec. 11-18-16w..Location.
McPherson O. & G. Co.'s No. 1 Brack, C NW Sec. 24-17-16w .....Drlg. 775 ft.
Syndicate Oil Co.'s No. 1 Mohr, C SW Sec. 2-18-16w ....Drlg. 800 ft.
Danciger Oil & Refining Co.'s No. 1 Nave, NW cor. Sec. 26-17-17w .....Total depth 3,606 ft.; shut down.

RUSSELL COUNTY

Streater & Stearns' No. 1 Mitchell, SE cor. Sec. 6-15-14w..Rig.
Empire O. & R. Co.'s No. 1 Herbel, NW NE SW Sec. 26-14-14w .....Rig.
Slick et al's No. 1 Berrick, SE SW Sec. 23-15-13w ....Shut down 500 ft.
Empire and Prairie's No. 2 Ochs, SE NE Sec. 23-15-14w..Drlg. 1,425 ft.
Austin Drlg. Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w .....Drgl. 600 ft.
Imo O. & G. Co.'s No. 1 Wambley, SE NW NE Sec. 7-14-14w .....Drlg. 3,160 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w ..Shut down 1,010 ft.

SEDGWICK COUNTY

Newman et al's No. 1 Bawly, SE NW NE Sec. 2-27-2 ...Drlg. 525 ft.
Tavender et al's No. 1 McLean, SE SW SE Sec. 23-26-1w .....Shut down 975 ft.

SALINE COUNTY

Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w .....Drlg. 1,725 ft.
Dixie Oil Co.'s No. 1 Miller, NE SE SE Sec. 9-16-3w ....Drlg. 3,110 ft.

SHAWNEE COUNTY

Jenkins & Scott's No. 1 Sherman, NW NE Sec. 28-10-15 .....Shut down 985 ft.
Jenkins & Scott's No. 1 Haden, NE SE Sec. 8-12-14 ....Total depth 2,650 ft.; abandoned.

STAFFORD COUNTY

Boucher Oil's No. 1 Christenson, NW cor. Sec. 22-22-11w..Drlg. 2,020 ft.
Boucher Oil's No. 1 Groves, NE cor. Sec. 9-22-11w .....Cleaning out 2,035 ft.
Midwest's No. 36 Richardson, SE cor. Sec. 36-22-12w ....Drlg. 2,545 ft.

STEVENS COUNTY

Barrington et al's No. 1 Creamer, C NW Sec. 2-35-39w ..Shut down 50 ft.
Argus Prod. Co.'s No. 1 Irwin, C SE Sec. 10-35-39w .....Rig.
Argus Prod. Co.'s No. 1 Ratcliff, C SE Sec. 8-33-37w ....Rig.
McNabb et al's No. 1 Porter, Sec. 4-31-37w .....Rig.
Argus Prod. Co.'s No. 1 Shaffer, C SE Sec. 6-35-38w .....Rig.
Argus Prod. Co.'s No. 1 Stone, C NE Sec. 3-33-39w .....Location.
Agate Oil Co.'s No. 1 Gregory, NW SE Sec. 19-33-38w ....Drlg. 2,135 ft.
Argus Prod. Co.'s No. 1 Libon, C NE Sec. 2-34-39w .....Drlg. 1,610 ft.
Argus Prod. Co.'s No. 3 Armstrong, C SE Sec. 3-34-39w..R.U.S.T. 2,554 ft.
Argus Prod. Co.'s No. 1 Roach, C NE Sec. 34-32-38w .....R.U.S.T. 2,530 ft.
Argus Prod. Co.'s No. 1 Asher, C NW Sec. 7-35-37w .....R.U.S.T. 2,825 ft.
Argus Prod. Co.'s No. 1 Barrow, C SW Sec. 32-34-38w ...5,000,000 ft. gas; completed 2,628-2,900 ft.
Mangle et al's No. 1 Youngren, C SE NW Sec. 24-32-39w .....Spudding; shut down.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w .....Shut down 1,600 ft.

SUMNER COUNTY

Magnolia Pet. Co.'s No. 1 Shriver, NW SW Sec. 9-33-2 ..Drlg. 250 ft.
Disney et al's No. 1 Fay, C E half SE Sec. 14-34-1w ....Rig.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w .....Rig.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3 ....Drlg. 240 ft.

WOODSON COUNTY

Sheedy et al's No. 1 Reed, SW SE SW, Sec. 26-23-14.....Shut down 1,595 ft.

WILDCAT OPERATIONS IN NEBRASKA

FRANKLIN COUNTY

U. R. Drlg. Co.'s No. 1 Brunkle (twin well), C NW SW NE Sec. 2-3n-13w .....Rig.

CHASE COUNTY

Chase Pet. Co.'s No. 1 Ingold, C NE Sec. 24-6n-38w ....U. R. 5-in. csg.; T. D. 4,265 ft.

FURNAS COUNTY

Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w .....Shut down 1,750 ft.
Graham Bros.' No. 1 Edwards, NW SW Sec. 13-2n-22w..Shut down 3,250 ft.

PHELPS COUNTY

Trees Oil's No. 1 Bergan, Sec. 22-6-19w .....Rig on ground.

RICHARDSON COUNTY

Norton et al's No. 1 Albin, NE cor. Sec. 26-1-14 .....Miss. lime 2,200 ft.; landing 8-in. casing.

ROCK COUNTY

North Central Dev. & Drlg. Co.'s No. 1 Leonard, SE cor. NE Sec. 14-32-18w .....Drlg. 900 ft.

WEBSTER COUNTY

Mid-Kansas Exploration Co.'s No. 1 Platt, C SE one-half Sec. 2-1n-11w .....Shut down 555 ft.

PRESSURE VITAL FACTOR IN MOVING NATURAL GAS

(Continued from Page 118)

up into the millions of cubic feet per day more than two regulators are installed. Again I would like to emphasize the point that knowledge of load conditions is essential when designing any reducing station.

A safety valve should be placed after the intermediate pressure regulator and should be set to pop at 10 pounds or so above the normal delivery pressure. A line heater ahead of the high-pressure regulator is nearly always essential.

On a high-pressure gas transportation system large regulators are also installed on the fuel lines to compressor stations and small 1-inch regulators are used in connection with line and meter house heaters and main line domestic sales.

After the gas has passed into the town it is necessary to reduce its pressure to from 2 to 6 ounces so that it may be burned in domestic heating and cooking appliances. There are two main methods of distribution, the high pressure and the low pressure. In a high-pressure distribution plant the intermediate pressure is carried on all the company's lines within the town. Individual small regulators are set just before each domestic heater and cuts the pressure to ounces before the gas is measured and burned.

On a low-pressure plant an intermediate pressure line encircles the town. Low-pressure mains branch off at various points and the pressure in these mains is the same as within the house lines. Large low-pressure regulators must be very sensitive and fluctuations in pressure of over a few tenths inches of water should not be permitted. In order to obtain this sensitivity special regulator designs have been perfected. Also volume control devices are used to take care of additional loads at peak hours.

Problems of Regulation

The remainder of this paper will deal with the common difficulties encountered by the field men in an effort to obtain proper regulation. They may be listed as follows: (1) Regulator of improper size, (2) head size too large or too small, (3) dirty or pitted valves and seats, (4) binding of the working parts, (5) loose connections, (6) pumping, and (7) freezing.

Often in the past not enough consideration was given to capacities and as a consequence improper regulation often resulted. The tendency was to install regulators which were too large. When the maximum amount of gas was passing through the regulator it would operate quite satisfactorily but when the load

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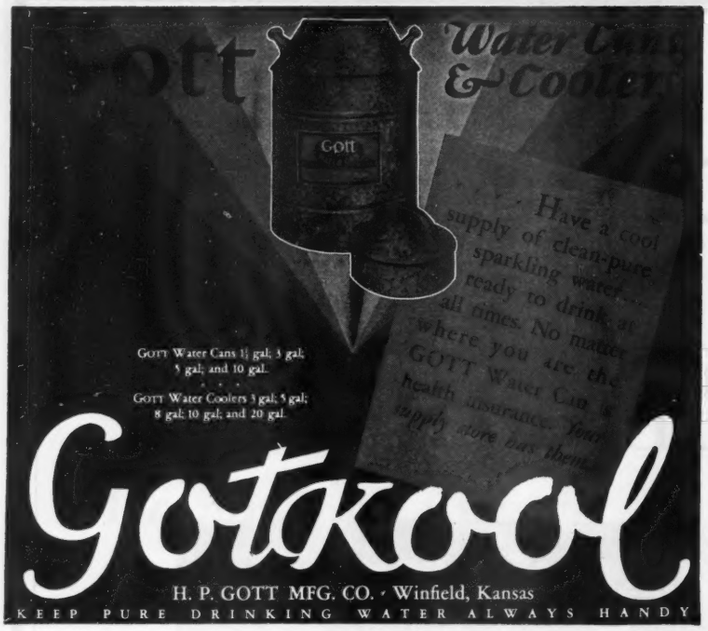
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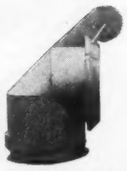

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dropped off the valves would be nearly closed and any slight binding of the working parts would have a marked effect on the regulation. At times when very little gas was being used enough gas would leak through the closed valves to build the pressure up far above normal. When the valve works within a few hundredths of an inch of the seat the seating surfaces of both valve and port will cut out rapidly. The rapidity with which the surface will become abrased will depend upon the amount of foreign matter carried along with the gas.

All manufacturers publish capacity tables for their regulators. These tables should be followed closely when deciding upon the size regulator for any particular installation.

Regulator Head Size

As a general rule, a regulator is more sensitive if equipped with a large head. This is due to the fact that with a large head there is more area for the pressure to act upon and smaller variations in unit pressure will create enough force to operate the valves. On low-pressure regulators control to within an inch of water pressure can be expected, but with high-pressure regulators equipped with small heads a variation of a few pounds may be expected.

The increased sensitivity obtained by using large heads is obtained within limits. If the head is so large that the lever must be loaded with an excessive number of weights, the sensitivity will be decreased rather than increased. There is also the danger of bursting the diaphragm or shearing the fulcrum pen with overloading. Complete failure of the regulator will then occur.

Along with regulator capacity tables, all manufacturers publish tables giving the proper sized heads for different pressures.

In any gas pipe line there are varying amounts of dirt, pipe scale, rust, water and gasoline. These foreign substances are carried along with the gas and increase the operator's difficulties in obtaining good measurements and pressure control. If the gas was clean and free from moisture very little work would ever have to be done on meters or regulators. However, even on sections of pipe relatively close to the wells where dirt and water are at the maximum a relatively small amount of work is necessary to keep the regulators in repair. It is necessary at times to grind the valves as the seating surfaces become marred and pitted by the dirt and moisture. The working parts must occasionally be cleaned and new diaphragms are sometimes required.

Meter and Charts Show Condition

As a general rule, regulator stations are close to orifice meters, or if they are not, a pressure gauge is usually located on the discharge side of the regulator. After some experience just what is wrong with the regulator can be told with a high degree of certainty by examining the orifice meter or pressure gauge charts.

If the pressure increases when the delivery is small, it indicates that the valves need grinding or that there is foreign matter between the valves and valve seats. Of course if the regulator is too large, the pressure will build up regardless of how well the valves are ground, as it is impossible to make them fit perfectly enough to completely shut off all flow. A positive shut-off may usually be obtained with an intermediate pressure regulator equipped with soft seats. Where the load is variable it is sometimes necessary to install two regulators of different sizes, using the larger when the delivery is large and putting the smaller in service during periods of small deliveries.

If the valve stem binds in the stuffing box due to imperfect alignment, corroded or dirty working parts, or if the valve guides rub heavily against one side of the ports, the regulator will not operate smoothly. The discharge pressure will drop several pounds before the force system is thrown out of equilibrium sufficiently to overcome the excessive friction and open the valves. When the valves do open they will open with a jerk and allow a large volume of gas to pass. This volume builds the pressure up rap-

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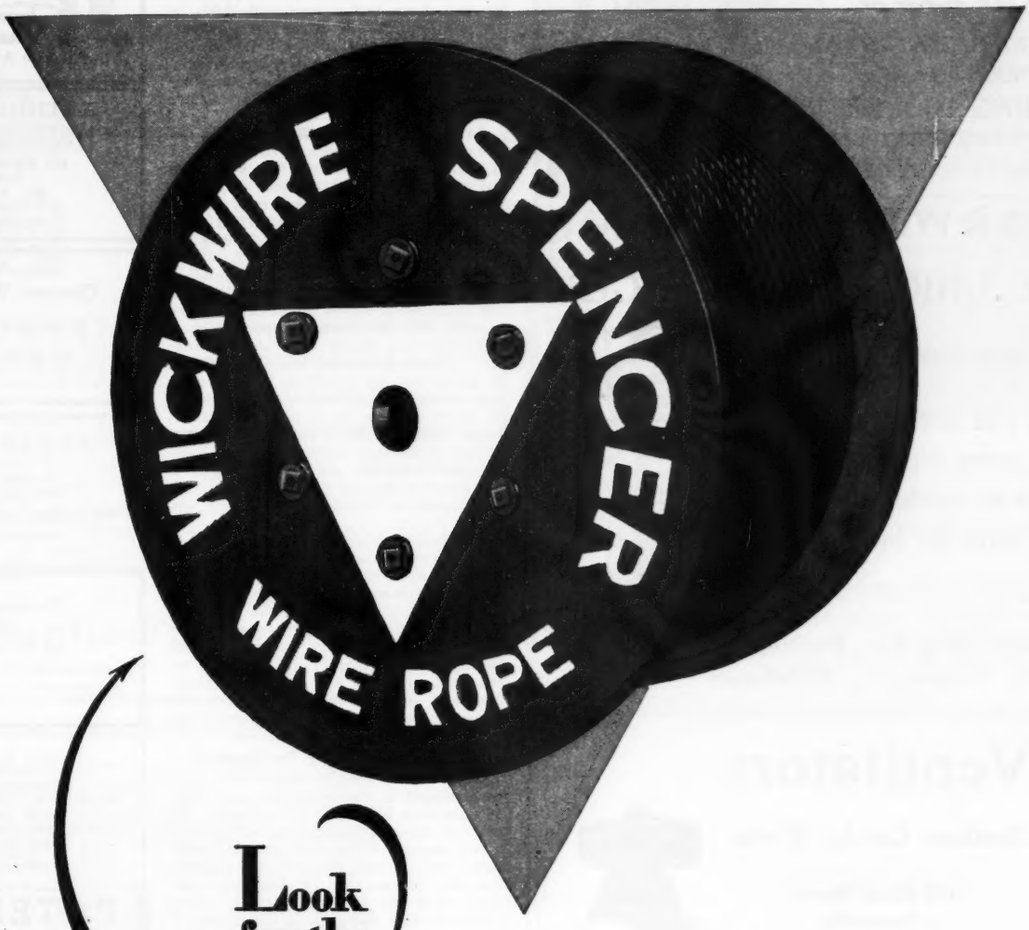

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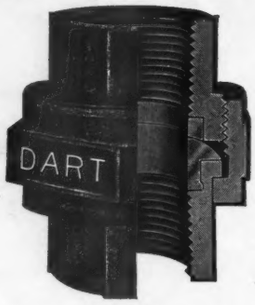

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idly and the valve closes suddenly. Consequently a very ragged chart results.

The best ways to eliminate sticking are: (1) Keep valve stems straight and valve stems and head connections in perfect alignment, (2) keep working parts clean, and (3) keep stuffing box as loose as possible.

What is known as chattering of a regulator is caused by loose connections between valve and head. This condition is indicated on the chart by a vibrating differential line. The valve will chatter up and down and a very little play in the connections will cause this to occur. By inserting small tin washers between the parts which are loosely connected this chattering may sometimes be eliminated. In extreme cases new stems are necessary.

In some cases the differential line on the chart will be smooth when running at 5 inches or thereabouts but when the delivery is increased a vibrating differential results. This is generally caused by lost motion in the valve. The valve connection may be loose or it may fit loosely in the guide.

Another common problem in regulation is known as pumping. It also causes the differential across the orifice to vary rapidly and in extreme cases the pressure will also change with the differential. Single regulators have been known to pump but the condition is most common when two regulators are connected in series with a small pipe volume between them, as for instance at a town border measuring station with a high-pressure regulator on the inlet and a low-pressure regulator on the outlet, the high-pressure regulator being the one which pumps.

Pumping is caused by a turbulent flow of gas through the ports of the regulator, creating a relative vacuum at the entrance of the control pipe, thus relieving pressure from the head of the regulator and allowing the valves to open. When this happens a surge of gas passes through the regulator, the pressure on the head increases and the valves close. The lever of the pumping regulator will move up and down regularly, hence the name pumping has been applied.

Several Methods May Be Employed

There are several methods which may be employed to overcome pumping. Most of these have been used with different degrees of success, but there is one method which never fails to overcome the condition. This method is to place a restricting disc in the line as closely as possible after the control pipe tap. The orifice in this disc should be of such a diameter that the pressure drop across it at the maximum load (pumping being generally the worst under this condition) will not be over 5 or 10 pounds. This disc tends to pack the gas up under the control pipe, thus eliminating or minimizing the relative vacuum condition.

Other methods which are not always satisfactory include the following: A restriction may be placed in the control pipe, the theory being that this restriction will not allow the gas to flow rapidly back and forth from the head. In some cases a change of head size will eliminate pumping. Another method is to connect the control pipe to the line at some distance from the regulator, the idea being that the swirl of gas creates a disturbance only close to the body of the regulator.

Freezing of regulators is caused by the cooling of the gas it expands through the valve. Freezing may be eliminated by installing a line heater ahead of the regulator. Regulator bodies have been known to fill completely with ice and as a consequence no gas could pass. If freezing is not too severe, the regulator valves will break loose after the pressure has dropped a number of pounds under the normal discharge pressure and allow the delivery to continue. Regulators have also been known to freeze in the control pipe. When this occurs the regulator will drop open.

What has been said explains briefly some of the uses for some general classes of regulators and some of the operating problems encountered. No attempt has been made to describe different makes of regulators.

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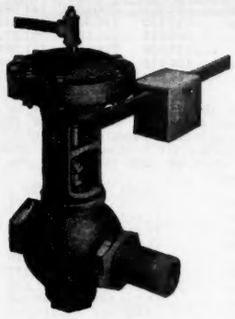

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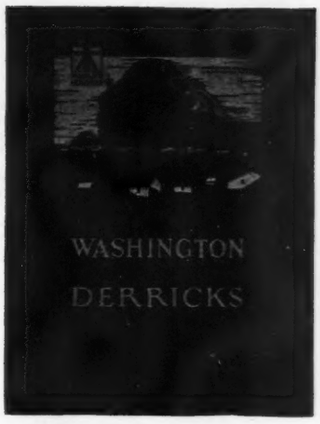

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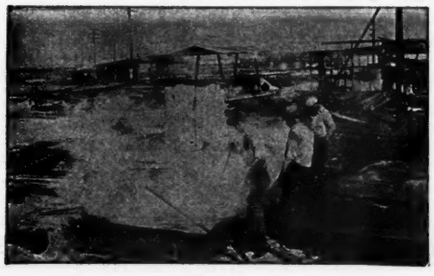

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